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english edition

4/76

Magazine for Medium and Large Format Photography · US \$ 3.90



# The Professionals have made their Choice...

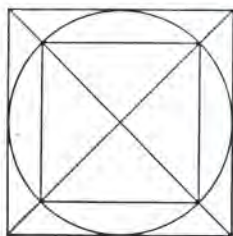
and distinguished the Schneider lens series Symmar-S and Componon-S by the EUROPHOT quality label.

Photo: taken with the Schneider Symmar-S 5,6/240 mm, aperture 45, studio flash, 13×18 format, Agfa Chrom 50 S/Hans Wilder.





# international photo technik



4/1976

The magazine in English, German and French for applied medium- and large-format-photography.

Verlag Grossbild-Technik  
GmbH München  
Owner Nikolaus Karpf (50%),  
Hildrun Karpf (50%).  
Publisher and Editor-in-Chief:  
Nikolaus Karpf, Hildrun Karpf.  
Editor: Driss Nasser, Technical  
news: Manfred Weinig.  
Translations: Brian Morrison.  
Address for all correspondence:  
Verlag Grossbild-  
Technik, 8 Munich 70,  
Rupert-Mayer-Strasse 45  
Tel.: 7 23 19 92.

Management and advertising:  
Manfred Weinig, Published  
quarterly. Subscriptions:  
through photographic dealers,  
magazine- and booksellers,  
or directly from the  
Publishers. Subscriptions  
which are not cancelled  
three months before expiry  
will be due for a further year.  
In the event of late or non-  
publication due to circum-  
stances beyond our control  
no claims can be considered  
for subsequent delivery or  
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Grossbild-Technik GmbH  
Munich. "international photo  
technik" appears in German,  
English and French; at  
irregular intervals also in  
Spanish and Italian and it is  
the largest and leading  
professional photographic  
magazine in several languages.  
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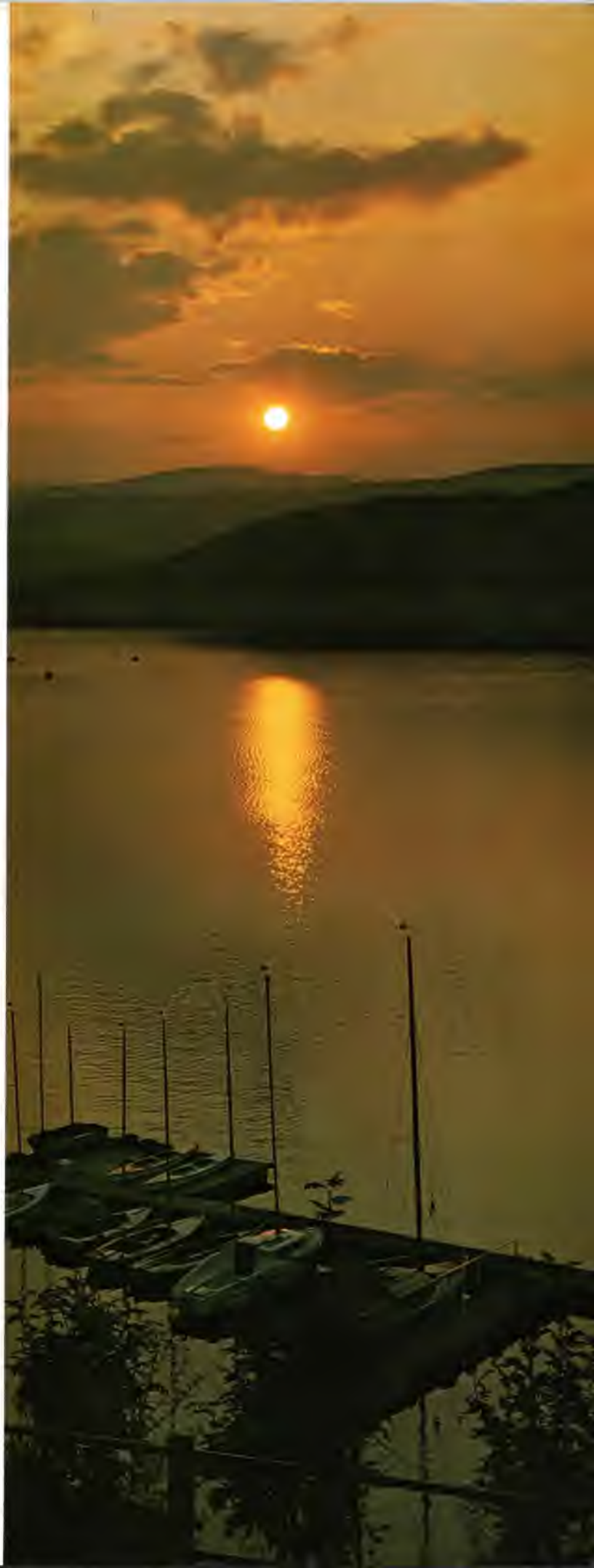
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in West Germany by  
R. Oldenbourg, Graphische  
Betriebe GmbH, 8016 Hei-  
mstetten, Hürdenstr. 4.

Annual subscription: USA  
US \$ 14.—, Single copies  
US \$ 3.90 postage additional.

Photo: Fritz F. Mader,  
Hamburg

- 5 Telegram or secret code?
- 6 Industrial photography today
- 14 Panoramic vision . . .
- 22 New ways of picture enhancement
- 23 Low-level lighting—the limits
- 26 Advertising photography—what's  
creative about it?
- 30 Klaus Damm, a Linhof photographer  
in Persia
- 33 Technical news
- 41 Gold
- 47 Experimental experience:  
Portrait of a zoom
- 48 Market-survey: 16 mm projectors
- 53 The nude with an amateur flair
- 57 Controlling the contrast in colour  
reversal printing
- 61 A word in favour of the bellows camera
- 62 Hans Gundel a self-made man
- 64 150 years of photography

It's becoming quite a problem to think up something new in the field of nude photography. It is difficult to discover some new angle or technique which has not already been tried. Nevertheless, a small number of photographers, in this case the Frenchman Paul Genest, does succeed in turning out an appealing composition at times. The trouble and expenditure for this photo were great, however: the studio was prepared and painted by the photographer himself (by hand). It has a "hollow background" measuring 24×36 ft and is certainly not a roll of background paper! 4×5 inch Linhof Kardan B, 150 mm Schneider Symmar S, 1/60 sec. at f 22, Balcar studio flash, Agfachrome 50 S.







**CdS...XL  
...TTL...  
QIS...W.A.**

## Telegram or secret code?

**DIFFICULTIES ARISING FROM OBSCURE ABBREVIATIONS**

Motorists are familiar with this craze. There is hardly an automobile which does not have some number or letter tagged on the back. Some manufacturers have become sparing with such denominations, but it may just be a form of inverted snobbery. So we have a variety of designations, some of them sound great, some are simple, but seldom does the consumer really know what all these letters and figures really mean or the reason behind them. I am often stumped myself. For example, what does "XL" mean? Or "GLX", "GTS" or other combinations? Some readers will probably grab paper and pen and try and enlighten me. Don't bother!

Nevertheless, there remains the question, is there any point in all this?

Actually, it was not my intention to discuss automobiles but cameras and photographic equipment. The fascination of such letter-and-number combinations was presumably so strong that the camera trade just could not resist applying such magic formulas to their products. Glancing through a buying directory of popular cameras, there was not a single apparatus which did not have at least one letter or figure after the name.

The whole affair is most likely to have started for the plausible and technically explicable reason that certain scientific or, at least, jargon-expressions were too long for the general public, e.g., CdS (cadmium sulphide), TTL (through-the-lens). It gets a bit more difficult with "XL" which means "existing light", a combination now used by many movie camera manufacturers to denote that a particular model may still be expected to shoot usable pictures when standard cameras have been packed away because the light is too low.

These few examples might serve to show what expectations the photo indus-

try connects with these magic symbols: the prospective customer, who is mostly not disinclined to reveal his special knowledge, is easily captured by these suffixes to the normal name—and buys. He sees in them an enhancement of the value, a quality seal, even a touch of the exclusive. Some more gullible customers even believe that the more letters decorating their apparatus the prouder they may be.

The fact is that many abbreviations are perfectly justified from a technical point of view. The disease is less widespread amongst the professional equipment, such as large and medium-format cameras, and most of the designations have a clear function. For example, the "EL" after Hasselblad imply "electric"; the "L" after the new Linhof Kardan or the "P" after the top Sinar model refer to the particular form (or shape) of the camera. As mentioned, the letters are quite often supplemented (or replaced entirely) by a figure. Usually they refer to the size and type of film which one can use in them: Linhof 220 (for the 220 size roll film), Technika 70 (will also accept 70-mm gauge perforated film), Rollei 35 (for 35 mm film), etc.

The imagination of the manufacturers seems to be boundless in this respect. As it becomes increasingly obvious that the consumer attaches a definite value to these mysterious codes, the more inventive the designers, admen and market researchers are becoming.

The Photokina shows us once again that we are still far away from a more rational application of these designations. Especially in the field of movie and 35-mm cameras, the want of reason is most apparent; the day of total confusion is just round the corner.

Who is being taken in?

Driss Nasser

It is no secret to the photographer that the colors yellow and blue are not all that easy to reproduce. Yet, modern emulsions—especially those films in the "Professional" category—now cope with this problem admirably. What is praiseworthy about this photo is not so much the good color rendition but the staggeringly simple camera and lighting technique. With a minimum of expenditure, Hermann Ruth, Munich, has succeeded in creating a most impressive picture. The arrangement as well as the illumination were quite uncomplicated, indeed almost artless. It is merely further proof that skillful handling of camera and light based on experience is a sure formula for successful photography.  
4×5 inch Linhof Super Technika, 180 mm Schneider Symmar, two 500-watt lamps as general illumination and spot (one from front and one from the side), 1/125 sec. at f 5.6, Agfachrome 50 L.



The tasks facing the industrial photographer today are highly varied. The solutions are manifold, and different from one client to the next. It is clear that when Monday's schedule entailed photomacrography of ball-point pens undergoing quality control, Tuesday included a poster of a threshing machine according to layout, Wednesday was taken up with a

Eugen Christmeier / Bischof & Broel

volving the use of high-consumption lamps it is best to ask for the advice of the works electrician, since he will know which sockets may be expected to withstand the heavy load.

It is, of course, impossible to describe here in detail the techniques involved in even a few of the above-mentioned types of assignment. There are a few points

# INDUSTRIAL PHOTOGRAPHY TODAY

color series on filling and packing ice cream and on Thursday another visit to the steel foundry is due, any photographer working in this field has got to be darned versatile as far as conception and manual techniques are concerned.

An illustration of an industrial product which is designed to set the latter in a favorable light and sell it will have a completely different appearance from a public relations shot taken for the same firm. It is absolutely essential to have a talk with the PR-man or manager of the firm giving the assignment, alternatively, take up contact with the responsible person in the advertising agency. Here one can clear up such questions as the aim of the campaign, the type of photography called for, size of film format and how the originals will be printed, etc. It is also important to know to what consumer group the photographs should appeal. What kind of "message" are they supposed to convey? As examples one might mention: The process flow in a construction workshop of a machine tool manufacturer; the hygienic working conditions in a food processing corporation; the precision of a dosing machine in the pharmaceutical industry or the versatility and ease of operation of some household apparatus. The list is, of course, without end.

Each of these assignments might be gathered under the general heading "Industrial Photography", yet each has to be carried out with different aspects in mind and express, in photographic terms, the aim and idea originally visualized by the client.

Further people who have to be contacted in order to solve various technical and photographic problems are the production manager and engineers concerned. These employees are best in a

position to explain a particular manufacturing process. It is often necessary, anyhow, to transport a machine, operate a crane or arrange a production unit so that it looks more "photogenic". Such people must be consulted before a production schedule is interrupted for a photograph. The average opinion of the photographer is that he is a "nuisance" who holds up the flow of work. In the case of an extensive photographic assignment in-

however, which are so generally valid that they ought to be mentioned: In large machine halls with plenty of daylight it is best to accept this and only fill in the shadows with electronic flash. Should only little daylight enter the workshop, however, it is more advisable to go over entirely to tungsten illumination in the form of banks and spotlights in order to avoid "mixed" color temperatures.

In the case of subjects which are less accessible or when one must remain mobile, the author prefers to use a hand camera, such as the Technika or Press 70 in ideal format. Where time and space allow, it is worth while setting up a 4×5 inch Technika or 5×7 inch Kardan Color on a tripod. One must have facilities to change from black-and-white to color reversal and color negative at short notice according to instructions. Unless it is a matter of a quick series with a hand camera, one will find the work tough without an assistant. If the light is poor, the author prefers to load Ilford HP 4 rated at 800 ASA or High Speed Ektachrome which can be "pushed" to 400 ASA. Every good operator in this field will tell you, however, that the most reliable results are achieved when one takes along one's own lighting equipment, effectively illuminates the scene and shoots it with a large-format view camera. Of course, wherever people are involved in the scene or for processes demanding short exposure times, the industrial photographer will probably find himself better served by some of the modern roll film emulsions—b/w as well as color—which permit an astonishing degree of enlargement without loss of detail. It is no secret that in the struggle with the depth of field one can generally save about two f-stops when changing over from 4×5 inch to a 2<sup>1</sup>/<sub>4</sub>×3<sup>1</sup>/<sub>4</sub> inch camera.

## Page 7

There is usually enough light available in a blast-furnace to shoot a "natural" photo without additional lighting. In fact, fill-in light or any other form of manipulation would be out of place.

Photo: Wolfgang Speckmann, Munich.

## Page 8

Some readers may wonder why this subject has been included in these examples of industrial photography. The border between one category of photography and the next is, however, not always easy to define. Candelier-Brumaire photographed the roof of a church (Eglise de Grigny, France) during construction. For the firm carrying out the contract it was an "industrial photograph", for the Church Council it was merely a record of building progress.



















It appears appropriate to round off these remarks with a warning to the younger generation of photographers. Anyone who believes that photography is a quick way to a fat bank balance will find that, at least as far as industrial photography is concerned, he will have to trim

*Color page left:*

*Top:*

A further photo taken by Ludwig Windstosser. The photographer had been asked to show this new Zeiss microscope being used within a particular field of application.

*Below:*

The "guts" of an MAN truck.  
Photo: Schoenlaub/Publicitis, Paris. 8×10 inch  
Kardan Color, Kodak Ektachrome.



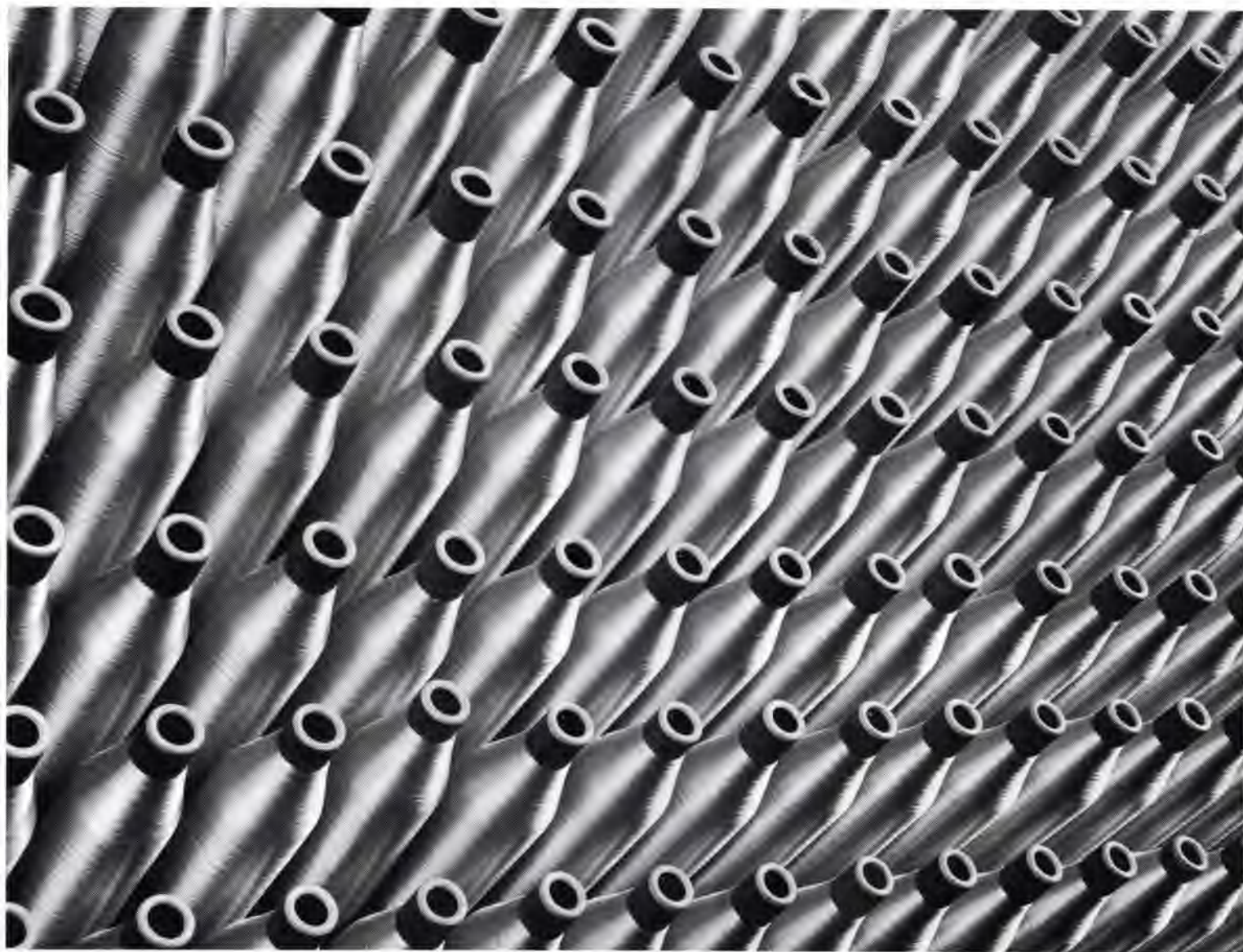
his expectations somewhat. The necessary investment in equipment is much higher today than in the past, the demands of clients are more exacting and the degree of personal engagement is much greater than in other fields of photography.

*Top:* A cellulose digester.  
Photo: Toni Schneiders, Lindau-Schachen.

*Page 9:*

Assembly of electric motors (AEG in Berlin).  
Photo: Ludwig Windstosser, Stuttgart.  
The inclusion of the supervisor checking the parts adds life to an otherwise technical picture.  
Hasselblad 500 C/M, 80 mm Planar, Kodak Ektacolor.

*Below:* Nylon.  
Photo: Toni Schneiders, Lindau-Schachen.







Top: Computer room (available light).  
Photo: Hans Georg Söllner, Frankfurt.

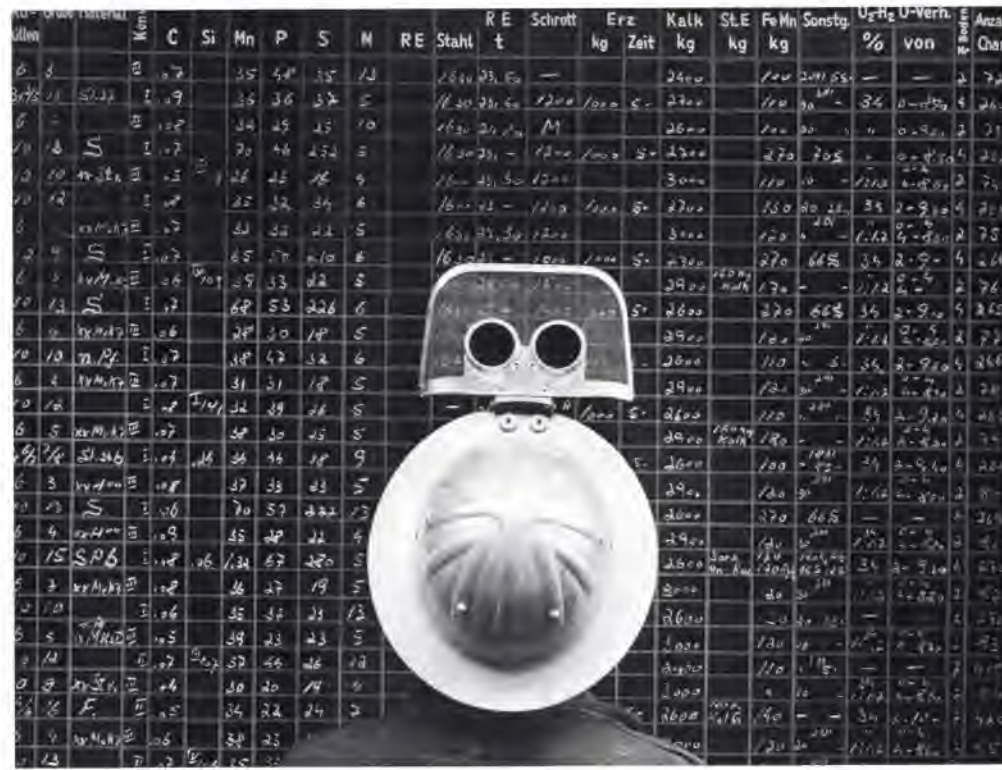
*Center:* Furnace charging schedule.  
Photo: Ludwig Windstosser, Stuttgart.

*Left:* Scholven Chemie, Ruhr area, W. Germany.  
*Photo:* Toni Schneiders, Lindau-Schachen.

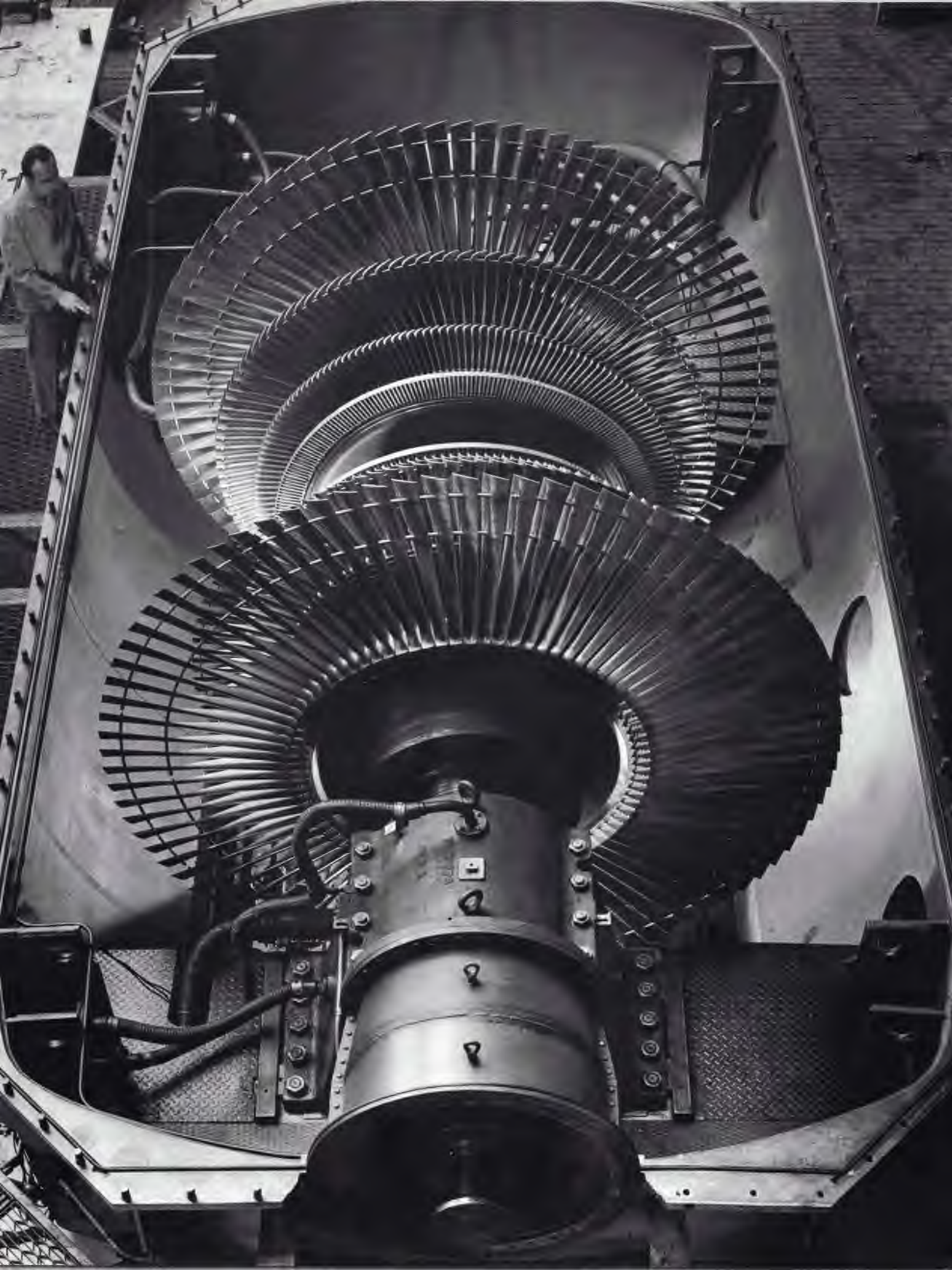


*Below:* Vilém Heckel, Czechoslovakia, created an unusual industrial photograph by including the rays of light in his composition.

Whole page on right:  
Photo: Vilém Heckel, Czechoslovakia.









# Panoramic



Highway bridge over the Rhine  
(near Emmerich) after a thunderstorm.  
The photo was taken by Frits J. Rotgans,  
Amsterdam, using a camera he made  
for himself (format 6.3×18").

*A review of the*  
**photographing**



# vision...



*possibilities in*  
**panoramas**

It is fitted with a 165-mm Schneider Super Angulon in a helical mount and requires special-format film. A contact copy of such originals is so large that there is no real need to enlarge them. Where is one going to get a 12×16 inch enlarger, anyhow!



Top:

Two cameras which were specially constructed by Frits J. Rotgans, Amsterdam, for panorama photography. On the left is the "Silent Rotgans", an "almost" mirror reflex camera which accepts up to 5x7 inch film and is fitted with a 500-mm Tele-Xenar. As a shutter he used part of a Reflex Koroelle built into his custom housing. An adapted (2 1/4 x 6 inch) Linhof Cine Rollex magazine for 70 mm roll film served as the film holder. On the right is his hand camera with 165 mm Super Angulon for 6.3x18 inch film.



Below center:

Here is another "home-made" cassette. Since the Czech photographer Edmund Bednár could not find a panorama camera to his liking on the market (before the days of the Linhof Technorama!) he made his own panorama cassette and attached it to his 8x10 inch Linhof Camera. It provided him with pictures 2 1/4 x 7 inch in size (see accompanying double-page illustration).



Below:

Three cameras which are used by a Bonn Press photographer, Alfred Hennig, not so much strictly for panoramic purposes but rather to capture the scene in the Federal German Parliament.



On the left is the Widelux 140 with a swivelling 26-mm f 2.8 lens; it takes 21 exposures on 35-mm film (135/36). The special shutter provides exposure times of 1/15 to 1/125 sec. In the centre one can see the Panofix 140 which uses 120 rollfilm (6 exposures 50x120 mm) and incorporates a 50-mm f 2.8 swivelling lens. The camera on the right is the Brooks 1000 which has a 47 mm f 8 Schneider lens with Compur shutter and takes 8, resp., 16 exposures on 120 or 220 roll film. Two flash units may be attached.

Double page 18/19

Top: A panorama produced according to the classical method: here six carefully-matched, individual photos have been mounted together to form a continuous scene (see smaller illustration below). Photos: Heinrich Durach, Lindenberg/Allgäu. The pictures were taken from the ski-jump at Berg Isel

Panorama photos still continue to exert an out-of-the-ordinary fascination on the viewer, and it is therefore not surprising when a large number of photographers want to try their hand at this way of taking a scene. The first question, of course, is *how?*

There are two main ways of producing such wide pictures:

1. Through special methods of exposure and printing.
2. Through cameras specially designed for this purpose.

It is possible, first of all, to take a consecutive series of photos which are later

(Double page 18/19, continued)

near Innsbruck with a Linhof Super Technika 2 1/2 x 3 1/4 inch and Super Rollex magazine in the ideal format (56x72 mm). Lens: 150 mm Schneider Symmar. Indeed a perfect example of this kind of panoramic photography.

Below:

A "panorama" picture taken by Edmund Bednár using a home-made cassette.

Color page right:

The well-known wildlife and landscape photographer Heinz Lothar Stutte, Weidach, took the Linhof Technorama on a journey to East Africa and tested the camera under the severest climatical and operating conditions. We are publishing three photos he took on the trip.

Top: For a special-format calendar, he wished to capture a long stretch of an African river. This was not difficult using the Technorama, and the result is pretty impressive.

Center and below:

Wild animals shown against the vast expanse of the East African plains is a domain for the Linhof Technorama!

All photos were taken on a gachrome 50 S roll film

Color page 20

Top:

One of the very first photos taken by Frits J. Rotgans, Amsterdam, in a "panoramic format". In spite of its advanced age the photograph still draws attention on account of the high performance of camera and lens.

Center:

A ceiling in Nymphenburg Castle, Munich, shot with the new Linhof Technorama 2.3x6.7 inch/6x17 cm. Photo: Linhof Präzisions-Kamera-Werke, Munich.

Below:

A further job for the Technorama is to take stills during the shooting of a motion picture in Cinemascope. Here we have a scene taken from a film made in the Bavaria Studios in Munich. The White House was set up true to life. Photo: Phil Stern, USA. Taken from the movie "Twilight's Gleaming".









# PANORAMA

*Fotografie*  
*Photography*  
*Photographie*













## PANORAMA-PHOTOGRAPHY

joined up to form a panorama. This technique has a number of disadvantages, requiring sketches and notes, a complicated set-up, exact and rapid work, since time does not stand still. Between the first and last shot the weather may have changed, the color temperature altered, etc. The photographer and his lab assistant have the difficult task of ensuring that the colors and density of each section of the panorama do not differ, otherwise the joints will be obvious even from a distance.

In the case of the special panorama cameras, one differentiates between those with a fixed lens and those in which the lens itself swings. In the latter system (e.g. Widelux) the lens moves through an angle of  $140^\circ$ , scanning the film as it goes. In cameras with a conventionally fixed lens (e.g. Linhof Technorama) the entire picture is exposed at once (in this case  $2.3 \times 6.7''$ ).

Having informed himself about the necessary equipment, the average photographer will ask himself to what use such broad pictures can be put—if not the other way round. This type of camera has, surprisingly, a very wide application: posters, cartography, postcards, calendars, travel prospectuses, advertising and illustration of broad objects are only a few examples.

*Illustr. right:*

Five examples of the work of Alfred Hennig (Color Press, Bonn). The photographer demonstrates the possibilities of a swivelling-lens camera. Impressive as the perspective may be, considerable distortion may take place (see lowest illustration).

*Top:*

Federal German President Walter Scheel receiving the German Olympics football team in Bonn. Here one can clearly see the effect of distortion.

*Fig. 2*

The W. German Parliament, the "Bundestag". This is an excellent shot with little sign of distortion.

*Fig. 3*

Federal Foreign Minister Genscher holding a press conference. Quite a bit of distortion at the right and left edges.

*Fig. 4*

Politicians preparing for a TV interview.

*Fig. 5*

Here is a clear example of the pin-cushion distortion caused by cameras fitted with a rotating lens system.





# New ways of picture enhancement

Any photographer who wishes to make the grade in this competitive day and age must be able to master a variety of image-manipulating techniques, hence, to abstract. The good craftsman, i.e., the photographer who is proud of his manual skills, is still rather skeptical of this mode of expression. When one has learnt, he believes, to master all the intricacies of photo-chemistry, optics and print-finishing in order to obtain maximum image quality, it is a pity to introduce any means of abstraction which then degrades the latter. The technical expenditure is not only too high for such practices but also the time spent on daily routine leaves little opportunity for experiments of this sort. Also, the results of such manipulations can seldom be printed mechanically. All of these arguments are, of course, of an economic nature. The professional, who has to earn a living through his photos, will think twice about the necessities of such departures from reality.

Yet, the taste of the consumer is influenced, often, by the stream of subtly manipulated illustrations in advertisements. The intention is to soften reality a little, to sweeten it and relieve it of some of its burdens. Pictures which are produced for television and whole-page color adverts in magazines justify practically any amount of expenditure. The "customer" likes to enjoy some of this extravagance in his own private life; it is something more or less abstract which he is after. Important in this respect is that an escape from physical reality is usually desirable, an understandable reaction in our times when so many of us are increasingly threatened with suffocation by technical progress. The latter has, significantly, become one of the most frequent sources of neurotic disorders. This indisputable state of affairs must, at any rate, be acknowledged. If the pipe dreams are to be realized however, the solution should be kept as simple and practical as possible. An example: abstraction of the photographic image to achieve special effects such as age (artificial) or the impression of having been printed on precious material.

The possible range of effects is staggering, yet the trouble and cost quite modest in relation. One can even cover up certain blemishes through lamination (heat sealing) and—what is important for the portrait studio—the results are repeatable.

In this context one might mention the texture screens and other print finishing materials offered by Teufel (Stuttgart) Ademco (High Wycombe, England) or Texturefects (Hollywood, USA). Up to a certain size, these may be laid over the print in the easel—which gives a very sharp reproduction of the structure—or they may be placed in the negative carrier together with the negative or transparency, in which case they are, of course, dependent for their effect on the degree of enlargement.

The foils from Teufel (Postfach 1102, 7000 Stuttgart 1) are available in the following surface structures:

|         |            |             |
|---------|------------|-------------|
| Etching | Pastel     | Irish linen |
| Fresco  | Old Master |             |
| Canvas  | Fabric     |             |

Overlay sizes: 8×10", 11×14", 16×20" and 20×24". For insertion in the negative carrier: 57×70 mm and 4×5". These are negatives reproduced from hand-drawn originals, so they have the expected, natural irregularities and create an astoni-

shingly realistic effect. In the case of the large-format foils (for direct copying), the structure has been scaled in such a way that it appears the right size at the normal, appropriate viewing distance.

These screens may be used in either black-and-white photography or the negative positive and positive positive color processes.

The following tips from daily practice may be useful to the uninitiated: The contrast of the structure when reproduced depends to a large extent on the gradation of the negative or transparency.

In the case of soft originals the structure might be so in evidence that it "drowns" the image. It is then fairly uniformly distributed over the entire picture.

High-contrast originals with scanty half tones, on the other hand, leave the structure reproduction in the background, so to speak, since a differentiation in the areas of extreme exposure (highlights and deepest shadows) is no longer possible and irradiation also occurs.

In b/w printing, therefore, it is best to select fairly dense negatives of a subject which has been evenly illuminated with frontal (flat) lighting. To obtain such negatives, one should process them in a high-concentration developer (such as Microdol X) or increase one's customary developing time by 50%. The increase in effective film speed must, of course, be taken into account at the exposure stage. This turns out at 1 f-stop/3 DIN for Agfa Atomal.

Since the method of frontal illumination and generous development is generally recommended anyhow in color photography to secure a maximum transfer of information values and best possible color saturation, it is only necessary here to make a comment about the practical limits. When using color negative film, the developing time should not be prolonged by more than 10%; if the original for the enlargement is a transparency, no increase in developing time is desirable or practical because of the contrast-steepening inherent in the positive/positive process.

For perfect results it is necessary that the foil, resp., screen lies flat together with the paper in the easel or the negative in the enlarger. Obviously, glassless negative holders are unsuitable here. If close contact is not ensured all over the paper, there will be areas of unsharpness. Easels with inadequate pressure can be replaced with a heavy glass sheet for this purpose.

Especially in the case of the method with the screen directly on the photo paper, one will soon realize that this is not an end to the manipulative possibilities. One can burn in or dodge at will, just as in conventional b/w or color printing. It is even feasible to expose the screen structure only on selected portions of the original by covering over the rest of the projected image. It is not difficult to create a gradual, inconspicuous transition when the latter is located in a darker area of the picture.

Experience in many countries has already shown that not only in the case of portraits and wedding photography—which is the most obvious domain for the techniques mentioned—the customer greatly appreciates this kind of picture enhancement and is ready to pay extra for it.

Hans Bortsch



# Low-level lighting—the limits

Hans Bortsch



Two professional flash units which are a great aid when it comes to compensating for a low level of lighting. Light measurement via photocells.



In view of recent advances in technology, one is generally so well equipped with various forms of lighting that the problem of insufficient illumination is less likely to occur today. This is particularly true of medium and large-format photography carried out in a studio or on an industrial location. In fact, experience tends to show, on the contrary, that the enormous light output of, for instance, modern electronic flash leads to extravagance and a consequently tiny aperture. It is obviously not generally known that excessive stopping down is more likely to result in a loss of image quality. This generosity is bound to have a detrimental effect on that fine sense for the economic use of light in those situations—usually out of doors, far away from studio flash—where the lighting conditions are unfavourable. There are quite a number of so-called “hopeless” occasions where, instead of capitulating, one could obtain technically acceptable photographs provided one applied know-how and the right combination of materials. The only kind of artificial light source which is practical in this connection is a powerful portable flash unit with a second lamp head triggered by a photocell. Such items of equipment are even within the reach of an amateur today.

Only the experienced, all-round photographer can possibly estimate just how

wide the scale of exposure values is for the various kinds of subject to be found out-of-doors in nature. Assuming the daylight remains “constant”, the difference between a measurement taken on a high mountain or beach scene, on the one hand, and a reading taken in an average forest, on the other hand, amounts to approximately eight light values—that is a ratio of 1:124! If, in addition, the sky becomes overcast when one is in the forest (which reduces the high contrast anyhow), then this ratio becomes even less favorable by a factor of 2—4. The differences which occur in large interiors, especially in churches, become even more pronounced. To bring the latter up to a general level of illumination such as one is accustomed to in industrial or studio photography, one would need an enormous battery of lamps. A further point is that the effect of light and shade in such buildings, as intended by the architects, cannot be produced by artificial means, no matter how great the trouble and expenditure. Here, as in many similar cases, any form of artificial light—irrespective of whether one means flash or continuous lighting—would completely destroy the atmosphere. While on the subject, one should not forget that although the initial and working apertures are generally smaller in the medium and large formats, the grain size

and contour sharpness in relation to these film formats are more favorable than is the case with 35-mm film. This point still does not seem to have got through, although a series of articles on this very subject has appeared in this magazine (IPT 1/71 and 3/71). To give only a very short summary of the contents: the power of resolution ratio between the fastest and slowest film emulsions can be set at 2:1. Even the ideal format (56 × 72 mm) has, for example, 6 times more area than a 34 × 24 miniature negative. This margin leaves us with a considerable reserve for additional stopping down in order to gain depth of field—without the risk of arriving at a shutter speed which might cause camera shake. This advantage is, however, diminished in the case of close-ups and telephotography for purely practical reasons, since the bellows extension becomes unwieldy. (As a matter of fact, the proportional increase in weight of telephoto lenses is less than in a 35-mm system, because the lens tubes are dispensed with in a bellows camera.)

First of all, let us take a look at the sort of conditions which prevail when the lighting is unfavorable: the table should only be taken as a rough guide and the f-number/shutter speed combination is given as the most likely relationship for each individual subject. When reading in



## Low-level lighting — the limits

a horizontal direction from one column to the next, the reciprocity failure factor has been taken, very roughly, into account. Of course, the above data are only intended as guiding lines and can never replace an accurate exposure measurement.

### Working procedure

Today it is still unfortunately the case that we are offered a much greater variety of black-and-white films of varying sensitivity than is the case with the color emulsions. It is therefore easier in b/w photography to adapt one's technique more closely to the prevailing situation. In earlier issues of IPT it was frequently pointed out that only a sensible combination of film type, format and processing technique—depending on the photographic assignment on hand—will lead to top-class results. Attention was also drawn to the importance, especially when using modern, medium format cameras and lenses, that no link in the information transfer chain should be allowed to remain weaker than the others. Naturally, the kind of assignment plays a leading role here. A still-life or architectural photograph, without any moving objects in it, is subject to exposure time limits only when reciprocity failure becomes too apparent, and even this situation can be mastered by the use of filters. (Alternatively, the use of long-exposure artificial light film with conversion filters). In such instances it is only reasonable to use film of slow speed and fine grain, irrespective of format, in black-and-white as well as color. But such photography has little to do with the problem at present under study, even if the prevailing lighting conditions are poor. When movement is included in the scene, however, one can no longer be so generous with the time parameter as in the above example with the large interior. It is especially here that the larger format cameras, in conjunction with high-speed film, offer a decisive advantage over 35 mm. It is worth drawing attention to the fact that this kind of action shot is by no means a domain to be reserved for the focusing-screen camera. In fact, the advantages of the rangefinder-coupled system become very apparent here, since the focusing accuracy is not so dependent on the brightness, and handheld operation also presents no problem.

| Subject<br>Kind of illumination                    | average<br>luminance<br>apostilb | 100 ASA                                                          | 400 ASA                          | 800 ASA                          | 1600 ASA                         | 4800 ASA                         |
|----------------------------------------------------|----------------------------------|------------------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| forest<br>Slightly overcast                        | 400                              | 4 <sup>1</sup> / <sub>60</sub>                                   | 8 <sup>1</sup> / <sub>60</sub>   | 11 <sup>1</sup> / <sub>60</sub>  | 16 <sup>1</sup> / <sub>60</sub>  | 16 <sup>1</sup> / <sub>125</sub> |
| twi light<br>street lighting<br>store window, etc. | 200                              | 4 <sup>1</sup> / <sub>30</sub>                                   | 5,6 <sup>1</sup> / <sub>60</sub> | 8 <sup>1</sup> / <sub>60</sub>   | 8 <sup>1</sup> / <sub>125</sub>  | 11 <sup>1</sup> / <sub>125</sub> |
| average rooms<br>neon lamps                        | 200                              | 4 <sup>1</sup> / <sub>30</sub>                                   | 5,6 <sup>1</sup> / <sub>60</sub> | 8 <sup>1</sup> / <sub>60</sub>   | 8 <sup>1</sup> / <sub>125</sub>  | 11 <sup>1</sup> / <sub>125</sub> |
| ditto tungsten                                     | 60                               | 2,8 <sup>1</sup> / <sub>15</sub> —1 <sup>1</sup> / <sub>30</sub> | 4 <sup>1</sup> / <sub>60</sub>   | 5,6 <sup>1</sup> / <sub>60</sub> | 8 <sup>1</sup> / <sub>60</sub>   | 8 <sup>1</sup> / <sub>125</sub>  |
| average<br>stage illumination                      | 25                               | —                                                                | 2,8 <sup>1</sup> / <sub>30</sub> | 2,8 <sup>1</sup> / <sub>60</sub> | 4 <sup>1</sup> / <sub>60</sub>   | 4 <sup>1</sup> / <sub>125</sub>  |
| Streets late dusk                                  | 20                               | 2,8 <sup>1</sup> / <sub>2</sub>                                  | 2,8 <sup>1</sup> / <sub>15</sub> | 2,8 <sup>1</sup> / <sub>30</sub> | 4 <sup>1</sup> / <sub>30</sub>   | 5,6 <sup>1</sup> / <sub>30</sub> |
| flood-lit Buildings                                | 4                                | 5,6/3s                                                           | 5,6/1s                           | 5,6 <sup>1</sup> / <sub>4</sub>  | 5,6 <sup>1</sup> / <sub>8</sub>  | 8 <sup>1</sup> / <sub>8</sub>    |
| low room lighting<br>(lampshades, candles)         | 1,6                              | 2,8/2s                                                           | 2,8 <sup>1</sup> / <sub>2</sub>  | 2,8 <sup>1</sup> / <sub>4</sub>  | 2,8 <sup>1</sup> / <sub>15</sub> | 2,8 <sup>1</sup> / <sub>30</sub> |

Wherever a tripod may be used, it is not difficult to obtain sharp focus on the ground glass screen provided points of light are available within the zone of desired sharpness; these are focused with the aid of a magnifier. In black-and-white photography there is not only a wide scale of film speeds to choose from; one can couple these with the most appropriate developer to obtain maximum resolution. A carefully tailored developing technique is still probably the most important factor in ensuring consistent, high picture quality. It has become very popular, for reasons of rationalization, to keep to one type of developer and simply vary the developing time and/or dilution for various types of emulsion or specific effects. As long as we are talking about genuine fine grain developers, such as Agfa Atomal or Tetenal Ultrafin, there is no objection to this practice, since the performance of these genuine universal developers has reached a standard which we would have considered impossible not so very long ago. On the other hand, those people who wish to squeeze the very most out of a particular type of film are still recommended today to tackle the subject in a more differential fashion: extreme fineness of grain, high resolution and top speed utilization can only be obtained in the case of the most sensitive emulsions by means other than those considered suitable for medium or slow films. To this end, there are a number of special formulas worth looking into.

In the slow and medium-speed film category the principle aim is to maintain or improve the contour sharpness and, at the same time, avoid sacrificing any of the modest sensitivity. The grain problem, especially with the larger film formats, is of less significance here. The best type of developer for this category is the so-called "surface developer", e. g. Neofin Blue (Tetenal) with the aid of which it is possible to boost the film speed rating and still get unparalleled contour sharpness. The snag of uneven development—caused by the high dilution ratio—can be circumvented by pre-washing the film and by a vigorous, asymmetrical pattern of agitation.

Turning to the maximum speed films—and after all this is the main point under consideration—the major problem is to get the grain under control and raise the speed rating if possible. The question of acutance is of secondary importance here, since if the grain is visible anyhow, a lack of contour sharpness is less likely to irritate. Here the method we need is an old friend, the two-stage development, in a modern version with the name of Tetenal "Emofin". This chemistry is based on the semi-physical principle, hence with genuine grain-size reducing capability and with the contrast reducing effect of the two-bath process. The result is a gain in speed rating of a magnitude which cannot be achieved by any other means. An important tip: in the case of large formats it is also advisable



here to pre-wet the film before development. With the aid of this process, it is possible to achieve an increase in speed of up to 2500 ASA for Agfapan 1000 or Kodak Royal X Pan, assuming average contrast conditions. If the contrast is low, e. g. in telephotography etc., it is possible to coax a further two to three DIN from these emulsions. Even with plenty of light and good eyesight, it is not possible to detect any grain structure or softening of contours in an 8 x 10 inch enlargement from an ideal format negative. When one then considers that for this particular film format there are top-class lenses with an initial aperture of f 2.8, then we have convincing proof of the superiority of the larger film formats under poor lighting conditions.

In the field of color photography the situation is somewhat "disarranged". We are still lacking, unfortunately, a range of color negative films of differing speed. If the rumours are correct, we might one day see from Kodak a 400-ASA film of which one can only hope that it will also be available for medium and large-format users. Negative color films of this speed potential would greatly broaden the action radius of available-light photography. The low-light, transparency film user has better shopping possibilities. Kodak Ektachrome High Speed, the artificial light version as well as daylight, may be pushed to 400 ASA by a prolonged development without any really noticeable loss in quality.

Those who are prepared to put up with a slight color dias towards green and a deterioration in the saturation of black tones, can even uprate their films to an astonishing 30 DIN/800 ASA! Photographers who are obliged to work under extremely poor lighting conditions will therefore have a marked preference for color reversal film and get paper prints made directly from the latter. The preparation of intermediate transparencies for this purpose is, in view of the present state of technological development, only appropriate in the case of extremely hard slides, since the gradation of Kodak internegative film is especially attuned to such a task and its gamma can be controlled with comparative ease. Even Agfacolor CN 17 film has proved more than adequate for this purpose, since the lack of a mask permits one to drastically cut the developing times (up to 50%), thus facilitating a contrast-reducing treatment.

Otherwise, one can make use of the new Cibachrome P 18 process. This is a three-stage operation on the dye-de-

struction principle for the production of prints directly from transparencies which has the merits of unparalleled sharpness and superb fastness to light. Since the intermediate negative stage has been dispensed with here, the transfer of information is greatly enhanced. Even this process can be manipulated to reduce the contrast within modest margins.

Wherever the subject dimensions are not too great, one can always fall back on the aid of battery-powered flash. A lot of photographers do not seem to be really aware of the enormous flood of light which an average compact flash unit, with, say, a guide of 90 to 100 at 50 ASA, can blast out even when released indirectly. To take an example: in conjunction with a unit of this capacity, a film of 400 ASA (a speed rating which is still unproblematical in the form of roll or sheet film, even in color) we may use an aperture of f 16 to f 22 when bouncing the flash indirectly from the white ceiling of an average-sized room! This means that even the large-format photographer can select an optimum aperture in interiors and get the added benefit of soft, indirect and uniform illumination with a minimum of trouble and expenditure. It would be going too far, in the present context, to describe the enticing possibilities inherent in this technique when *several* units are synchronized together in large rooms. It is only intended to point out the fact that there are unex-

ploited possibilities here; the weight and size of such a combination adds little to an outfit of small negative format, but the improvement in the results is well worth the extra trouble.

The table below refers to the approximate range of 3 flash units at f 4. The last two columns are only appropriate in black-and-white photography where one can push the speed rating to the figures given by means of a two-stage development in Emofin with a 30% increase in developing time (acceptable in frontal flash illumination). These values can be raised even higher in the case of telephotography. For a start, the optical contrast is lower and then there are concave mirror aids, such as the "Maxiflash" which concentrate the flash rays on the distant subject. With this arrangement, even the smaller type of compact unit can punch out a beam of light over several hundred feet. If one then takes into account the fact that ultra-high speed film is relatively unproblematical in medium and large-format cameras, sets this advantage in relation to the total weight of the apparatus combination (with the flash unit), then one arrives at an equipment/performance ratio which throws a miniature camera into the shade. These examples should suffice to show that the dramatic improvements in film emulsions of recent years, initiated originally for the sake of 35-mm and sub-miniature fans, has also benefitted the large-format film-user.

| 50 ASA Guide numbers | 100 ASA | 400 ASA | 800 ASA | 4800 ASA |
|----------------------|---------|---------|---------|----------|
| 131                  | 50 ft.  | 98 ft.  | 147 ft. | 196 ft.  |
| 183                  | 65 ft.  | 131 ft. | 262 ft. | 393 ft.  |
| 262                  | 98 ft.  | 196 ft. | 393 ft. | 524 ft.  |



# Advertising photography—what's creative about it?

What photographer does not dream of carrying out one creative advertising assignment after another, and then living from it—and not badly at that?

Yet, those clients who are prepared to give the man behind the camera a "free hand" are few and far between. The adman is quick to notice which photographers have a touch of the creative genius and which are mere order-receivers. One only has to take a glance at Hans Feuer's photography in the British magazine "Nova" and compare it with the German magazine "Brigitte" in order to confirm the point.

Peter Knapp, who has worked for the magazine "Elle" since 1959 commented on the subject of advertising photography as follows: "Of course, you cannot expect any great surprises or revolutionary trends in the advertising sector. The rules of the game are pretty much common knowledge. The marketing directors have pinned down the borders, the aesthetic and intellectual borders, fairly exactly, so we get a kind of self-censorship even before any creative ideas find their way into the printed medium. So the results may be technically good, but they are not very original. Advertising is subject to the dictates of technocrats and marketing bosses! Original, creative sort of people are seldom allowed to carry out such assignments on their own initiative. I'm not trying to complain about the set-up—that's just the way things are."

Here we have a real challenge for each and every photographer. We must not allow creativity to be stifled by the exigencies of commerce. Even if it is merely a form of self-assertion and the client does not really appreciate one's ideas, one must try to present him time and again with a creative solution. Perhaps he might catch on, one day. For the majority of photographers the assignment with a creative margin will, unfortunately, remain a dream.

*Color page right:*

Werner Unger of Cologne has succeeded in coming up here with an allround advertising medium. Thanks to its wit, charm and naturalness it is usable for almost any publicity purpose, for an advert as well as a poster or front cover. The theme could also be varied at will. This is creativity as it should be!  
Hasselblad 500 C/M, 80 mm Planar, Kodak Ektachrome Professional.

*Color page 28:*

Here is another peach from Werner Unger. The photo shows once again that a photographer should never rely on technical skill alone—this is assumed anyhow—but must constantly come up with some new angle. The idea with the cock stuck onto the glass may not be all that fresh, but it is the arrangement which gives this picture the extra pep.  
Linhof Kardan Color, 210 mm Sironar, Kodak Ektachrome 5×7 inch.











*Below:*

This is an advertising shot taken by Fritz and Helga Fössel, Munich, which draws most of its flair from the futuristic phone and the skillfully lit background.

It is simply a pleasant, straightforward still-life which does not strive to be creative "at all costs".

Hasselblad, 250 mm f 5.6 Zeiss Sonnar, Agfachrome 50 S.



*Right:*

Food photo by courtesy of K. Ammerbacher/Agentur Ingrid Kaminski, Hagen-Vorhalle. In the case of this picture it is the decoration which is the main creative element, backed up by the special lighting effects. Food photographs such as this are usually required for cookery books or illustrating articles in womens' magazines.

Linhof Kardan Super Color, 210 mm f 5.6 Symmar, Kodak Ektachrome 5×7 inch.



*Extreme right:*

This original composition was taken by Ernst Steingasser, Darmstadt. The actual photography has become subordinate to the text and the idea behind it which was to establish a relationship between the childrens' shoes and nature. Included in the photo is the rough text for producing the layout. Any errors were, of course, eliminated in the final run.

Linhof Kardan Master L, 180 mm f 5.6 Symmar, Kodak Ektachrome 5×7 inch.



*Right below:*

Onions in light and shade. Photo by Uwe Behrendt.

Frankfurt. The photographer proved that he is capable of presenting even the everyday things of life in an interesting fashion. The picture catches the eye, inducing the observer to devote a moment to the "contents". The aim and purpose of the photograph have thus been fulfilled.

Linhof Kardan B, 360 mm f 6.8 Symmar, Kodak Ektachrome 8×10 inch.





## A LINHOF PHOTOGRAPHER IN PERSIA

# Klaus Damm

When the word "Persia" is mentioned, most people still have visions of a backward country, of poverty and desert. In fact, Persia (or Iran, as it is now known) is the most highly industrialized nation in the Middle East. It is certainly no longer one of the "under-developed" countries, as they used to be called. The industry which has been built up in the last ten years is not entirely connected with the exploitation of oil. Great efforts have been made to diversify the new industries taking root in the country. These include the assembly of vehicles, breweries and the manufacture of pharmaceuticals. Each year a few more factories take up production, principally in the area around the capital, Teheran. The rest of the country is pretty much "provinces". There have been

The Island of Khark. A petroleum refinery under construction, shortly before completion. The red hue of the sky was caused by burning natural gas in the background. In addition, there was a light sand-storm, perhaps one should say "dust-storm", so that the illumination through the gas flame (taken at night) became diffusely distributed.  
4×5 inch Linhof Super Technika, 90 mm Schneider Super Angulon.

Assembly of the Citroen "Dyana". For this shot the conveyor line was stopped for two hours. It was taken from scaffolding which was especially erected above the assembly line for this purpose. The foreground (the hood of the front automobile) was illuminated with 2, 1000-watt lamps with blue filters. The headlights of the first car were switched on to give it a bit more "life". The doors of the car were kept open by two men concealed inside it. The four yellow overalls were brought along by the photographer himself.  
4×5 inch Super Technika, 90 mm Schneider Super Angulon.

endeavors to decentralize, but progress is slow; the main offices of the major enterprises remain in Teheran.

On account of this considerable industrial expansion there were plenty of opportunities for Klaus Damm to work successfully as an architectural and industrial photographer. For example, many industrial and trade fairs take place. Proud factory owners require building progress to be recorded—and they like the pictures nice and large!

Most of his photos are taken with a 4×5 inch Technika. Such glittering, expensive large-format cameras are not seen very often in Persia. The portrait photographers use wooden cameras in a style common around 1900, and these are still being built in the country today.







In common with other aspects of Persian life, it is necessary for the photographer to "put up a show" wherever he goes. This means that he should always take his lighting equipment with him even if this does not seem absolutely necessary. After all, one has a team of assistants and it is not "correct" for the photographer to get his hands dirty. Such work as laying cable, moving objects around and clearing up, etc., is left to one's own helpers or the workers employed by the client.

It may sound strange, but it is not possible to ask very much for the actual photography. One recoups on the enlargements. Klaus Damm reckons he puts in two hours hard work on each take, on average. Up until now his standard film has been Agfa CN 17, either 4×5 inch cut film or roll film. Using this unmasked color



negative film, he has managed to carry out practically all incoming orders. Transparencies for photomechanical reproduction and for illuminated display, as well as large prints in color and b/w—all of it is produced in his own darkroom.

Customers for the architectural photography were building contractors, owners and, of course, the architects concerned. It was often necessary to return to a site many times in order to record each stage of construction work.

For all these assignments the Technika proved to be the most suitable tool. It is a definite advantage to use a compact, robust drop-bed camera when one has to clamber about on ladders and cranes. The movements of the camera were fully utilized, especially to correct converging verticals but also to gain depth of field.



① Assembly of television sets. The two workers in the foreground were selected very carefully. 4×5 inch Linhof Super Technika, 90 mm Schneider S. Angulon.

② The Island of Khark. Dirty crude oil, which it is not worth purifying, is simply burnt on the spot. The generation of heat was so enormous that the photographer got his eyebrows singed. 2½×3¼ inch Mamiya Press, normal lens.

③ The front door in the house of a prosperous Teheran business man. The artistic and manual skills inherent in the Persian people can be seen in this example of glass painting. It was illuminated obliquely from behind with 2, 1000-watt lamps. 4×5 inch Super Technika, using 90 mm Super Angulon and 120 roll film Rollex magazine.

④ Filling medicine into bottles (see also b/w photo No. 7). Illuminated with 2, 1000-watt lamps. 4×5 inch Super Technika, 240 mm Schneider Tele-Xenar.

⑤ The Island of Khark. Construction of a gas tank. The circular opening serves as a means of entry until the tank has been completed. Mamiya Press 2½×3¼ inch, normal lens.



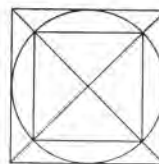
All photos were taken on Agfacolor CN 17 sheet or roll film.

The prints were enlarged likewise with the camera using a home-made lamp housing incorporating a filter drawer for CP filters. For rapid shooting from the hand, Damm also used a 2½×3¼ inch Mamiya Press.

In Iran one is not *either* an architectural photographer, fashion photographer or other specialist with a narrow field. It is assumed, when one turns up with a large camera and lamps, that one is capable of coping with all manner of assignments—and even handling a movie camera, on occasions.



# technical news



## New Super-8 generation Agfa-Gevaert presents amateur film cameras with an MOS system

Agfa-Gevaert are introducing three amateur film cameras of a new generation upon the occasion of the photokina. These involve cameras of the luxury and semi-luxury price range which due to their latest miniaturized technique—called MOS technique—are considerably smaller than comparable models together with an expanded range of efficiency. The three new arrivals: the Agfa Movexoom 6 MOS electronic with a 6-times zoom as well as the Agfa Movexoom 10 MOS electronic and the sound-film camera Agfa Movexoom sound MOS electronic with a 10-times zoom.

For the first time in camera construction, MOS modules (MOS = metal-oxide semiconductor) were employed with these Movexoom models, each one of which can cater for the function of approx. 1500 transistors. The advantage which MOS modules offer in addition to further facilities for miniaturization: the light measuring system, so far the most sensitive part of a Super-8 camera became absolutely insusceptible against shocks by means of a new technique (stepping motor and integrated circuit) and distinguishes itself now by a practically unlimited service life.

The new Movexoom models present themselves in mat-black. Their special features: they offer a professional engineering system concentrated in the smallest space. This includes the high light-intensity finder with digital-controlled stop indication, split-field range-finder and film-run control, automatic lap dissolve, fade-in and

fade-out, individual motor-driven stop adjustment, running speeds of 9, 18, 25 and 64 fps and single-frame device, backlight correction and battery check, filter sensing (daylight/artificial light) and film speed sensing (15/17 and 21/23 DIN), remote and cable release connection as well as flash contact.

The Movexoom 6 MOS electronic is equipped with a fast 6-times zoom 1.8/7—42 mm, the Movexoom 10 MOS electronic with a 10-times macrozoom 1.8/6—60 mm with 2 ranges of adjustment (1.2 to infinity and 1.2 m to front lens). In addition the Movexoom 10 offers two power-zoom speeds, automatic titling system (release once = four frames), built-in delayed action device, exposure pilot lamp (red signal on the front face of the camera lights up when the release is operated) and automatic time-lapse device (timer).



Technically identical with the Movexoom 10 sound MOS electronic is the Movexoom 10 sound MOS electronic for Super-8 cassettes with track-coated film and normal Super-8 cassettes. Live sound recordings can be made with the running speeds of 18 and 24 fps, in connection with which the sound level is automatically controlled. The frame/sound spacing at 18 fps corresponds to the international standard. An amplifier with

its local power supply is additionally built in this camera. A directional microphone is supplied with the camera.

## New Copyline High-speed Developing Machine "Rapimat 65" for reprographic firms

Agfa-Gevaert now supply a high-speed developing machine working on the „rapid access“ principle with the name „Rapimat 65“. The proved principle of construction of the well-known Copyline AP 126 developing machine has been applied. The maximum working width of the new machine is, however, 62 cm. Films from the graphic and reprographic range of Agfa-Gevaert and the waterproof papers with polyethylene coating can be processed. Processing is carried out of films and papers derived from contact work and re-enlargements using line and screen originals as well as linear pictures. The special fields of application comprise cartography, the design office and the electronic industry. The normal processing time from dry to dry is only 90 sec. The time of passage, however, can be adjusted continuously and thus permits an adaptation to special applications.

The materials leaving the automatic developing machine Rapimat



65 are fully archive-permanent despite the short processing time.

Agfa-Gevaert AG, D-5090 Leverkusen.

## Asahi Pentax 6×7 marine underwater camera case

The Asahi Pentax 6×7 marine underwater camera case is at present the only underwater case for ideal format cameras. Diving depth up to 50 meter corresponds to a pressure of 6 bar. It consists of camera case and three lens front parts, standard-lens front part for a 55, 75 and 105-mm lens, fisheye front part, macro front part for 135, 150 and 200-mm lenses.



*Material:* aluminium casting, seawater-resistant green-gray coating, controls and handles of vinyl.

Flash connections X-FP, controls for distance, stop and shutter speed.

Asahi-Optical, Quandweg 64, D-2000 Hamburg 54.

## New! — Soliger ITV-zoom 1:2.3/12-72 for 1" vidicon

A universally applicable 6-times zoom with C-mount connection and a focal length range in high demand. Due to its large wide angle (52.8°) it is ideally suitable for space supervision, while the telescopic focal length of 72 mm





(10.2°) is in many cases suitable for the supervision of the subject.

The lens should, however, also prove interesting for all amateur movie makers, possessing a Super-8 or 16-mm camera with interchangeable lenses for which the necessary adapter rings are obtainable for C-mount lenses.

AIC Fototechnik GmbH, Postfach 810126, D-7000 Stuttgart 81.

## AV-Informators

At trade fairs and exhibitions, but also for the product demonstration in one's own business as well as for training and tuition compact projection units are required,



With the AV-Informators the entire technical section is accommodated in a closed housing. The units are manufactured as standard with rear-projection screens of 60 × 60 cm, 80 × 80 cm and 100 × 100 cm which are built in at the front.

A comprehensive supplementary and accessory range is available. Thus the units can be equipped

with a sound attachment and with a pulse control for the demonstration of sound-film shows. Upon request the apparatus can also be equipped with two projectors and with a fader for a dark-interval-free hard or soft dissolve.

For setting up the equipment there are available optionally a floor tripod, a wall or ceiling mount. The apparatus can also be placed, however, without a tripod on a table or shop counter.

## Info-Spot, a new special projector for the medium-size format

Frequently a projector with a very high light output at a relatively low number of pictures is required for advertising special offers, annual general meetings of limited liability companies or a "sign post projection" as an aid to orientation in large buildings during meetings.

An apparatus in line with such applications is the new Info-Spot. The one version consists of the Prado-Universal projector, suitably modified, which has been equipped with a powerful 400-W halogen lamp and a mechanically reliable automatic slide changing system. This apparatus serves the lower performance range, in conjunction with not too difficult external light conditions, for achieving picture sizes up to approx. 3 × 3 meter.



The more powerful version is a complete projector design manufactured by -bke-Bildtechnik with a 1000-W CSI discharge lamp. According to the lens equipment, this Info-Spot achieves picture sizes between 3 × 3 meter and 10 × 10 meter.

For both projectors transparencies in the medium-size format of 7 × 7 cm are used. For topical new flashes a special foil for direct lettering by hand or with the typewriter is being offered. A text assembly kit permits the combination of prepared words for forming the particular texts desired.

Sales: -bke-Bildtechnik, Postfach 1149, D-3412 Nörten-Hardenberg.

## Tripod and accessories

The tripod range of "broncolor" has been expanded by a light lamp tripod. The three-leg telescopic tripod Junior is equipped with a quick-lock for the level adjustment.

It is a constituent part of the new C-70 Traveller Kit equipment and for this reason particularly suitable for easy transportation. Being small and handy, it requires little room. An important detail: the lamp can be attached at both tripod tube ends, as required directly above the floor.



The simple, light-weight boom is suitable for the studio and for outdoor shots. It is manufactured of three individual aluminium tube sections. For transportation it can be taken apart and fits in the C-70 Traveller Kit. The movable counterweight caters for the equilibrium. A telescopic tripod serves as tripop foot. The connecting flange to the telescopic tripod can be adapted to different tube diameters.

## broncolor Converter

The new car battery converter for studio equipment by broncolor permits exposures with high flash power, wherever power supply connections are lacking.



Connecting the flash generator to the car battery via the converter, charging and already there is sufficient power available for industrial photographs. The charging process takes barely longer than 13 sec for 750 Wsec. A wellcharged battery supplies sufficient power for 300 flashes. In part generators of other makes may also be connected.

bron elektronik ag, Langgartenweg 27, CH-4123 Allschwil.

## Homrich Vertical Enlarger

The firm of Homrich will be presenting its vertical 13 × 18-cm and 18 × 24-cm enlarging units at the "photokina" in a new shape and engineering system. Still more flexibility, still more operating amenities in the interest of the customer were behind the thoughts of the new developments. Test with texts have resulted in the fact that particularly a modern indicating system for the filter values was well received by men of practice.

F. Homrich & Sohn, Grosse Rainstr. 41-55, D-2000 Hamburg 50.

## New Paterson cutters with a rotary knife

Paterson present this professional cutting technique also for the home laboratory.

Two models can now be supplied: No. 4796 for paper sizes up to 25 cm, No. 4797 for paper sizes up to 40 cm.

Paterson cutters with a rotary knife possess interesting advantages:

- a clean cut even with thin materials, such as heat-sealing adhesive films. The rotary knife of hardened steel is self-sharpening.
- Precise angular accuracy, since the base board, the paper guide and the knife mounting are manufactured in one piece. A maladjustment is impossible.



- Easy and safe operation, also in the darkroom.
- Transparent guide for the rotary knife.
- Interchangeable cm/inch graduation.
- Firm stand by means of rubber feet.

## Paterson optical test panel

for the testing of lenses, films, developers. Permits the comparison of picture qualities.





# Hasselblad, Hasselblad & Hasselblad.

The three cornerstones in one of the mightiest camera systems in photography.

The Hasselblad 500C/M. Compact, versatile precision in 2 1/4 square. Components can be switched while you work. Not just lenses but backs and viewfinders too.

The Hasselblad 500EL/M. Motor-driven but otherwise similar to the 500C/M.

The Hasselblad SWC. A camera with a permanently attached ultra wide-angle lens. Interchangeable film backs.

A lot of factors have made this formidable trio famous. Take Swedish craftsmanship for one. Or how about option-stretching interchangeability. (Switching backs holding 12, 16, 24, 70 or 500

exposures is only a matter of seconds.) Or an almost mindboggling range of accessories – from underwater housings to radio-control gear.

More pictures are probably taken with a Hasselblad than any other 2 1/4 x 2 1/4 camera. More detailed information is yours for the asking. Just drop us a few lines.



**H A S S E L B L A D**

Victor Hasselblad Aktiebolag,  
Box 220, S-401 23 Göteborg, Sweden

IPT-76

----- Please send information to -----

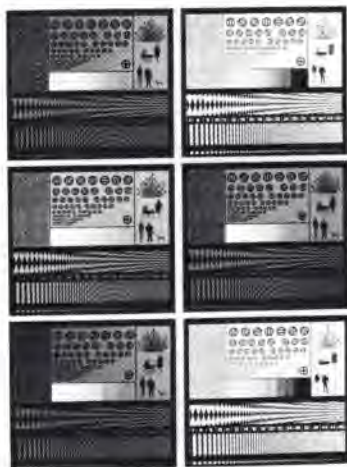
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Country: \_\_\_\_\_





The test board consists of 63 test patterns with color areas. The test patterns are designed in such a manner that resolving power and contrast can be checked or compared.

The test panel is accompanied by a detailed book of instructions with hints on the evaluation of the results.

### Ideal presentation with Kindermann "AV 600 Präsent"

Every day products, services, machines are being offered, when the interested party is compelled to orientate himself by referring to samples, photographs or leaflets.

In this connection the new Kindermann AV 600 Präsent can provide a valuable support. A daylight projector whose magazine has a capacity of 50 slides is built into a plastic hard-shell carrying case with an aluminium frame.



With this unit product slides can thus be shown in daylight. With three manipulations the handy unit is ready for demonstration and the first picture appears already brightly illuminated.

The carrying case also offers space for samples, patterns, etc.

A real aid for every sales representative.

*Sales:* Kindermann & Co. GmbH, Postfach 28, D-8703 Ochsenfurt.

### For the true-to-contrast processing of Cibachrome-A material: new Linhof illuminating attachment for the Compact Enlarger

Obviously the new Cibachrome-A material can be processed with any enlarger. Only there is—especially with condenser apparatus—one difficulty: the colour enlargements always turn out more contrasty than the transparency originals. This may sometimes be the cause of enlargements from already contrasty transparencies becoming unusable.

This feature of the new Cibachrome-A material was taken into account in the conception of the Linhof illuminating attachment for the budget-priced Compact Enlarger. Thus an illuminating attachment originated, distinguishing itself by a particularly softly matched light with which true-to-contrast Cibachrome-A colour enlargements can be produced from any colour slide up to size 4×5 in. In the same manner also very contrasty black-and-white negatives can be excellently enlarged with the aid of this attachment.

#### Accessories:

- negative carrier with device for receiving framed slides with an external size of 5×5 cm,
- multiple exposure cassette for the simple processing of the Cibachrome-A paper.

### A practical aid for the laboratory: Linhof Suction Board 30×40

Many photographers as well as the owners of smaller trade laboratories know far too little about suction boards.

Nevertheless the applications of the suction board are by no means only found in the professional copying sector. Particularly if trimmed-edge trade enlargements are to be produced or continuous roll material is being employed, suction boards represent the ideal holding device for the enlarging paper. Reproductions too of wavy originals are part of the everyday problems of the photographer.

The obstacle in the way of a greater popularity of the suction boards may have been until recently the relatively high purchase price of these units and the associated vacuum pumps. There has been a change, however, since Linhof has been offering a new very

attractively priced suction board 30×40 cm. It not only almost completely solves all paper holding problems arising in enlarging technique, but can also be called upon for complicated copying work.

The suction pump with foot switch supplied with the equipment achieves astonishing performances by means of the Linhof special pressure foil. The following are held absolutely flat underneath this optically neutral foil: enlarging papers, foils, aluminium or copper sheets etc. of size 9×12 cm (or smaller) up to 30×40 cm also in two or several layers above or next to each other. Thus composite charts can be assembled and also minor changes performed by partially lifting the foil without altering the remaining elements.



By operating a selector, the outer suction channel can be disconnected, by means of which the full vacuum power is maintained also with the 24×30 format. As required, pins may be inserted at two channels, which serve as a guide with batch work. The Linhof suction board 30×40 can be applied both horizontal and upright.

#### Technical data:

Dimensions of the suction board 44×33 cm, largest size of material for processing 30×40 cm, smallest material for processing: unlimited; dimensions of the suction pump 20×13×20 cm, weight: 4 kg, suction capacity 1.2 m³/h at 80% vacuum. Special pressure foil I is supplied on request in rolls of 10 meter, 51 cm wide.

Linhof Präzisions-Kamera-Werke GmbH, Rupert-Mayer-Str. 45, D-8000 München 70.

### Cinematic I "S", hydraulic panoramic head with patented head I

Following upon the success of the Cinematic I and II, Linhof expanded its range of efficient, budget-priced hydraulic heads by the Cinematic I "S".

The well-proved features such as steplessly adjustable torque, shock-resistant as well as dust-proof enclosed hydraulic system, functional reliability from -25° to +60°C, clamping screw, tripod

connection by a standard thread and clamping mount are being retained.

What is new is the combination with the well-proved patented head I. The vertical inclination is clamped in this instance by way of a separate handle-type nut. The handle spindle for the guiding of the head (and thus of the camera), however, can be most widely adjusted by a clamping shell on a ball. In this manner, according to the camera construction and working habits, the optimum spindle position can be adjusted, e.g. for left-handed operation.



In addition the new Cinematic I "S" possesses a spirit level for the horizontal alignment of the panoramic head, a cable release mount in the handle spindle as well as the time-tested T-slot in the head plate for the compensation of the center of gravity.

In conjunction with the double-profile tripod with levelling facility by Linhof, this results in a semi-professional equipment which ensures jerk-free pan shots in conjunction with amateur cine cameras with short to medium-long focal lengths.

*Manufacturer:* Linhof-Präzisions-Kamera-Werke GmbH, Rupert-Mayer-Str. 45, D-8000 München 70.

LINHOFF set new standards in the lab:

### COLOR 45

This universal enlarger for exacting professional requirements has a great future: it is versatile, space-saving, convenient and budget-priced.

The proverbial Linhof quality is evident in every inch of its superb mechanics. Weighing in at a total of 132 lbs., the COLOR 45 is characterized by outstanding rigidity and delightful operating convenience. Rapid vertical adjustment of the head takes place smoothly by means of a counterweight when the spindle is in the released position, but the latter can be engaged again at any height, whereupon effortless fine adjustment is effected by means of a handy, lockable



# Linhof offers more !



When it comes to precision photo-technical equipment for a multitude of applications in all fields of modern photographic techniques, LINHOF offers more than just one type of large format cameras. First and foremost, the famous **TECHNIKA**, representing the world's most universal large format camera system, as the compact and mobile camera equally suitable for rangefinder-controlled hand-held shooting or for studio work requiring full camera adjustments.



For even greater flexibility, a complete selection of studio cameras is available at prices to fit every budget. LINHOF KARDAN monorail cameras offer the ultimate in adjustability and precision. They combine advanced modular construction and lightweight design with maximum stability and rigidity under all conditions.



A full range of special medium and large format cameras is part of the all-encompassing LINHOF system of modern professional camera equipment. **TECHNORAMA 517**, the superb panoramic rollfilm camera – **QUADROPHOT 45**, the new 4-exposure identification system – **AERO TECHNIKA 45 EL**, the compact hand-held instrument with fully motorized operation, combining the handling ease and operating convenience of a roll-film camera with the advantages of the brilliant large picture format.



Leading photographers choose LINHOF precision tripods as the perfect and logical complement to a valuable camera outfit. LINHOF offers the largest selection of amateur and professional tripod systems for still, movie and video cameras plus a wide range of copy stands and precision enlarging systems to meet every requirement in professional, industrial and scientific applications.

The full range of LINHOF phototechnical equipment, now available through our new U.S. distributor, is shown in our latest comprehensive product listing obtainable through your nearest professional dealer, or by writing to the addresses listed below. Ask for your copy today.



**LINHOF**

PRÄZISIONS-KAMERA-WERKE GMBH  
D-8 MÜNCHEN 70  
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**H.P.MARKETING CORP.**

LINHOF DIVISION  
98 Commerce Road,  
Cedar Grove, N.J. 07009  
U.S.A.



In Canada: Wild Leitz Canada Ltd. 513 McNicholl Ave. Willowdale, Ontario M2H 2C9



crank located at the front edge of the baseboard. The projection table may be levelled off, is finished in white and coated with metal so that magnetic strips may be used to hold the paper. On account of the column height of 59", the COLOR 45 permits enlargements of up to 19.7×23.6 inch in a vertical mode, and by rotating the head enlargements may be made horizontally up to almost any desired final format.



It is due to the various lamp systems that the COLOR 45 has achieved a degree of universality which is almost unprecedented. The starting point was a newly designed color head with dichroic filters and rapid changeover facility for white light; the filter values may be stored and recovered on switching back again. There is a light amplifier for small formats. A special diffusor ensures that the illumination remains unusually uniform from the centre to the edge of the image.

Only a few simple steps are necessary to change over to condenser illumination with opal lamp. By virtue of the fact that the distance between the film plane and the condenser can be altered (so-called "transfocal illumination system"), any format from 24×36 mm up to 4×5 inch may be ideally illuminated with one and the same condenser. An additional filter drawer and built-in fan with separate switch show that nothing has been forgotten.

### Accessories for Copying

Interchangeable lenses of focal lengths from 60 to 150 mm are mounted on the standard Linhof lens panels and may be exchanged within a matter of seconds. These lenses (from the leading German manufacturers) are also available mounted in a shutter for copying purposes. A copy illumination unit with four adjustable, reflector-type photolamps is quickly attached to the column. The film stage is already calibrated in the works to accept the insertion of exact-register devices, e.g. the well-known Linhof film holder for exact-register copy and enlarging purposes. The negative masks are always centered in relation to the optical axis, whereas the negative holder may be shifted laterally at will (e.g. for cropping). All the various applicable film formats may be printed with the head vertical, up to about 19.7×23.6 inch/40×60 cm. Using the 60 mm lens, the maximum magnification factor is 15.8; the smallest projected reduction factor is 0.27. From the process point of view this means that one can enlarge four times and reduce fifteen times. Exterior dimensions: overall height 59", overall width 27", overall depth 25"; weight: 132 lbs./60 kg.

Linhof Präzisions-Kamera-Werke GmbH, Rupert-Mayer-Str. 45, D-8000 München 70.

### Supplements for Nordic Frontpro HCS

Appropriate modifications and supplements in the range of accessories furnish renewed proof regarding the versatility of this compact front-projection equipment.

- slide carrier adjustable in all directions — even oblique,



- slide carrier 5×5 (picture size 4×4 cm) specially for portrait focal-lengths as an accessory.
- enlarged mirror (specially for 6×7) with self-supporting light trap.
- projection unit in a black finish.

Especially for the advertising studio, special accessories are now available, the large-format adapter. Thus Nordic Frontpro HCS can be applied in connection with all usual large-format cameras. Important note: existing equipment can be converted by Nordic to the latest state of the art.

Nordic, Im- und Export Handels-ges. mbH., Hufnerstr. 20, D-2000 Hamburg 76.

### Noris Headphones K 16

Suitable for all sound film projectors and record players with a 4 ohms loudspeaker output to DIN standard. Particularly valuable for monitoring during the sound recording with the Noris Norimat electronic. The caps can be adjusted to any size of head. Very convenient in use, since they weigh only 63 grams.



#### Specification:

Transmission range: 80—12000 Hz  
Impedance: approx. 600 Ω  
Connecting plug: to DIN 41529  
Length of cable: approx. 2 meters

### Hasselblad—new underwater housing

The design of the new underwater housing for the motorized Hasselblad 500 EL/M represents completely new thinking, both in terms of materials and execution. The camera's automatic film winding and shutter cocking, plus an instant-return mirror, enable you to keep close watch on your subject after each exposure without removing your eye from the viewfinder. The weight of the camera in air, including a 50 mm f/4 Distagon lens and a Magazine 70, is about 27½ lbs.

The underwater housing consists of four main components. 1. a



housing midsection with handgrips and grip rings, 2. two dome ports, 3. a viewfinder and 4. controls. The housing's midsection is made of 0.1" thick acidresistant steel. The dome ports are made of ¼" thick acrylic plastic with a spherical diameter of 8". You look down into the prism-type viewfinder through the rear dome. Internal and external controls have been designed on functional lines and have been subjected to exhaustive testing.

### Kaiser 3035 S Miniature safety halogen lamp



220 V, 1000 W, 3400 K, with pin-base burner. A halogen lamp embodying absolute safety. The safety attachment is provided with a bayonet catch which makes for a quick replacement of the burners without difficulties. The safety front pane can be exchanged for the conversion filter 3016. The camera rail can be attached either on the left or the right. The handle can be exchanged for the Super-8 key which is supplied with the equipment. The lamp can be swivelled by 90° for indirect lighting. Toggle switches and 6.3 amp fuse, connecting cable 4 meter long are built in.

The same lamp is also available with louvres (Kaiser 3030 SK).

Kaiser Fototechnik KG, Postfach 6, D-6967 Buchen/Odw.

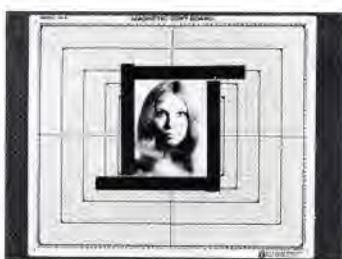


## Magnetic-Copy-Board, now in four sizes

Magnetic-Copy-Board is now obtainable in the sizes 32×38, 38×48, 58×68 and 65×90 cm. The corresponding magnetic strips are supplied with each board in the respective lengths and quantities.

The universal board can be utilized as:

- paper holder when enlarging, for each picture size at any position on the plate, of particular advantage with very curly paper by the meter.
- Copying object holder, flat, standing up or hanging; should the centimeter line grid be disturbing, the back is pure white.



- A perfect drawing plate, on which the work is securely held by the magnetic strips, along which triangles or rules can be laid.
- A "parking place" for all papers to be kept under observation.

Sales: Paul Teufel + Cie, Postfach 1102, D-7000 Stuttgart 1.

## Minolta XM-Motor

Now the electronic versatility and the automatic exposure system of the Minolta XM has been combined with an automatic film feed—in conjunction with a completely new camera conception. The result: the Minolta XM-motor, the first mirror reflex camera, designed specially for motor operation, with automatic exposure control and interchangeable finders. Although built for strenuous continuous operation, the new XM-Motor is astonishingly compact and light as well as uncomplicated in its handling. With frame frequencies up to 3.5 fps, the automatic exposure control (time automatic system) and the automatic film feed are coordinated in such a manner that the correct exposure is guaranteed for each individual exposure. On the other hand the motorized film feed fully-automatically awaits the shutter action.

The automatic prismatic finder-S with silicon photoelement and LED

indication of the shutter times, specially developed for the XM-Motor, calculates the shutter time from subject brightness, stop value, film speed and manual override and simultaneously checks the frame frequency. Naturally all XM finder inserts and XM adjusting discs fit into the XM-Motor. The entire Minolta mirror reflex system with over 30 Rokkor lenses from 7.5 to 1600 m and some 200 accessories are also available for the XM-Motor. Added to these are remote release cable, intervalometer (time and program controls), radio remote release and further electronic controls. A 10-meter film magazine for 250 exposures is being offered in the same way as different handles, battery and storage battery containers, film loaders and other specialized accessories.



## Minolta Auto-Spot II Digital

Spot exposure meter with digital LED indicator for exposure values and stop values, measuring angle 10°; silicon photoelement; monocular mirror reflex finder; focussing lens and eyepiece, measuring range: exposure values 1 to 19.9 at 21 DIN, exposure times: 1/2000 to 15 sec., film speeds: ASA 12 to 6400 (= 12 to 39 DIN).



## Minolta Auto-Spot II

Spot exposure meter with silicon photoelement and automatic motorized scale compensation (all scales visible in the finder and illuminated), monocular mirror reflex finder; adjustable lens and eyepiece. Measuring range: exposure values 3 to 17 for 21 DIN (up to exposure value 21 with neutral-density filter), exposure times: 1/2000 up to 30 sec, stop values: 1.0 to 45, film speeds: ASA 3 to 25,000 (= 6 to 45 DIN).

## Prontor surprise at the "photokina"

The Prontor works, an undertaking in the Zeiss group, will be represented at the forthcoming "photokina" with the greatest range of photographic and light shutters in the world. In addition to 9 mechanical, 4 electronic and 9 magnetic shutters, Prontor are for the first time showing a magnetically-driven shutter with 1/500 sec. and a mechanical shutter with the briefest time of 1/3000 sec.

Outside the shutter sphere, there is an interesting new development for professional and studio cameras which greatly facilitates working with these items of equipment.

Prontor-Werke, D-7543 Calmbach.

## Apo Ronar 1:10/f = 520 mm

For many years the Rodenstock Apo Ronar has been the standard lens of leading process cameras, and that for a good reason: intensive research work and continuous improvement in close cooperation with graphic art companies and camera manufacturers has allowed it to mature into a perfect special lens for copying work and related techniques.

The new Apo Ronar 1:10/520 mm follows a development which indicates in copying work technique that there is an increasing importance for the processing formats of 50×60 cm and 20"×24".

With these formats and simultaneous extreme demands made on picture quality (also in the corners of the picture!), the Apo Ronar with 480 mm focal length had to be stopped down considerably, while with the 600-mm Apo Ronar long extension lengths were the result which in part could not be realized in the existing copying units. As a supplement to the past Apo-Ronar series, the new Rodenstock Apo Ronar 1:10/520 mm has thus become a necessity. It meets the highest technical demands.

Optische Werke G. Rodenstock, Isartalstr. 43, D-8000 München 5.

## On the occasion of the photokina 1976 in Cologne, the House of Schneider will be presenting the following novelties:



1. the first zoom interchangeable lens in the world for 6×6 cm mirror reflex cameras: Schneider Variogon 5.6/140 to 280 mm.

2. The first zoom lens for enlargers and printers:

Schneider Betavaron 3 ... 10/0.08.

3. The first zoom lens in the world for Super-8 cameras with a thirtyfold focal length range:

Schneider Variogon 1.8/6 to 180 mm.

4. A new ×30 TV zoom lens for outside broadcasts: Schneider Tele-TV 30×33. Thus Schneider are now offering ×30 color TV lenses in wide-angle, standard and tele versions up to 1000 mm!

5. A zoom copying lens for variation in scale for three formats: Schneider Vario-C-Claron 5.6/240—260 mm.

6. A wide-angle enlarging lens in the top class for formats up to 24×36 mm:

Schneider WA-Componon 4.0/40 mm with disconnectable click stop.

7. Schneider lenses for medium and large-size formats also with multi-layer hard-coating (multi-coating) are available for delivery.

Jos. Schneider & Co., Optische Werke, Postfach 947, D-6550 Bad Kreuznach.





## Linhof 220 RS

LINHOF 220 RS – small as a "35" and just as handy, yet with 5 times the format area. A modern camera for rapid shooting. Just the job for sport and news coverage. Also ideal for fashion, landscape, aerial and industrial photography. Pick it up and you are ready to shoot. Pull down the transport lever – and just shoot again. Easy and quick to focus even when the light is poor – thanks to the projected – frameline viewfinder with coupled exposure meter. Rapid on the job – thanks to the adjustable, anatomic grip with shutter release.

LINHOF 220 PL – the smallest aerial camera in the ideal format – fitted with aerial finder and body release.

LINHOF 220 – the camera for exacting action photography in a pro format. Perfect styling combined with great simplicity of operation.

Send now for further information!



## Variogon Zoom Lens from Jos. Schneider & Co.

### Technical data

Max. aperture f/5.6  
Focal length 140–280 mm  
Angle of view, diagonal 16–30°  
No. of elements 17 in 14 groups (multicoated)  
Diaphragm f/5.6–45  
Focusing range, normal 8 ft. – ∞  
macro mode 2½ ft. – 8 ft.  
Smallest format-filling subject size 13×13 in (33×33 cm)  
Synchro-Compur shutter B, 1–1/500 sec.  
Front diameter of first element 80 mm  
Filter Series 93  
Weight 62 oz (1740 g)  
Length 9½ in (240 mm)  
Delivery from the beginning of 1977

## New items by TETENAL at the "photokina"

### Neofin-color in two versions

Neofin-color A now specially serves for the working up of all colour negative films which have to be processed like Agfacolor films.

Neofin-color 2 is matched for all colour negative films which have to be developed like films such as Kodacolor II films.

### Reversal process UA

For the reversal development in keeping with the types of films which have to be processed like films such as Agfachrome 50 S/L films, the Tetenalcolor High Speed Reversal Process UA is appearing at the "photokina" with a yield per package of 3 cassette or roll films.

### Reversal process UKX

For the reversal development in keeping with the types of Ektachrome films, including the photomicrography colour films 2483, yield per package 3 cassette or roll films.

## Color Positive Process PK—now liquid

The High Speed Positive Process PK liquid for the colour development of all colour papers such as Ektacolor RC papers supersedes the well-tried developer in powder form and simplifies the processing. Packages for 1 and 5 liter working solution. In the same manner as with the PA-set, the packages contain a data sheet with time and temperature curves for colour development and the bleaching-fixing process. A special data sheet is also enclosed with the processing conditions in cylinder developing machines.

## Reversal process UK II

The Tetenalcolor High Speed Reversal Process UK II, fully liquified, now exclusively for the working up of the Ektachrome 14 RC papers. Supplied in the proved form. The red rendering is optimal.

Suppliers: Tetenal Photowerk GmbH & Co., Postfach 2029, D-2000 Hamburg.



## New Leica R 3

At the photokina Leitz has presented a new Leicaflex-Camera.

Full electronic light measuring, selective or integral from 1/5000–4 sec., 16 mm fisheye–800 mm tele-objective, Leicaflex-bajonet-Optic mounting.

E. Leitz GmbH, D-6330 Wetzlar.

*Linhof*

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# GOLD







Even the earliest civilizations were familiar with the precious metal, gold. Around 5000 BC the Sumerians were skilled in the smelting of gold, and through the ages it has never once lost its lure. It inspired artists to create works which have survived several thousand years and, just as in the earliest of times, such masterpieces seem to cause the "spirit of gold to glitter".

However irresistible the fascination of gold may be, the photographer who is intent on recording its charm will not find it an easy task. To do justice to the precious metal is one of the most tricky assignments in the whole spectrum of photography.

In the choice of a camera there will at least be little hesitation, since practically the only feasible apparatus is a large-format view camera. This is for the very reason alone that goldsmiths are skilled at fine, detailed work with their hands, beating the metal into wafer-thin sheets or rolling it into thin rings. Only a large format is capable of recording such filigree work and extracting the maximum beauty from it. The most delicate ornament and engraving require much less enlargement when recorded on large-format sheet film.

As far as the actual photographic technique is concerned, it is the manner of lighting which plays the most important role. The following points should be observed: the goldsmith's work should be photographed in a fashion which is in keeping with its value; every detail must be brought out clearly; the color balance must correspond as closely as possible to the color tones in the original jewelry; the background or base must be in-subordinate to and harmonize with the main motif; disturbing highlights should be avoided; the creation of an impression of depth is recommended for three-dimensional objects.

All of this assumes, of course, that the photographer must become thoroughly familiar with the material itself. He should not hesitate to consult experts for advice or, at

least, read up appropriate literature on the subject.

Those who try photographing gold will soon discover that arranging the lighting requires infinite patience, since the items are usually very small and highly reflective. The only solution is to keep on trying different angles until one is satisfied

with the effect. Glancing light from one side is recommended to bring out surface details, for example, but the range of possible lighting techniques is wide.

Referring to the background again, the most suitable support is probably a sheet of black card or velvet. Black has the advantage that it absorbs inevitable shadows and serves as an admirable contrast to the rich warmth of the gold. It is not wise to introduce a whole load of accessories to the background.

In some cases CC filters will prove indispensable, especially in cases where great value is laid on correct color rendition. Likewise, text exposures — employing the same emulsion number and lab process — are reassuring. Thought should also be given to the correct use of a polarization filter. It absorbs light, of course, increasing the exposure, but it can improve color saturation and reduce unwanted reflections.

Film stock should be carefully tested for suitability: extra-fine grain for black-and-white and the slower types of color reversal sheet or roll film. The degree of enlargement will then be higher.

For newcomers to this field it is worth while starting with a gold coin and practicing from A to Z. Even such a simple piece of gold will give enough trouble before the techniques are mastered.

In actual fact, the photography of goldsmith's work is an exacting test through which one can recognize the true master of the photographic craft. The illustrations accompanying this article originally appeared in a most attractive book with the simple title "Gold". It was published by the Kartografischer Verlag Busche GmbH., D-4600 Dortmund. The highly informative text was written by Johann Willsberger.

The photo shows the most beautiful items of gold taken from over thirty famous collections throughout the world. Perfect photography is only the start; just as important are good printing and high-quality paper (Planoprint — Feldmühle).

The King's Dagger (overall length 32 cm/12.6 inch); necklace with pendants (9.5 cm/3.7 inch wide).

Death-mask from Egypt, 1333 BC\*, 54 cm/21 inch high. The mask of Tut-en-ch-Amun is probably the most beautiful that has ever been found. It was fashioned life-size in pure gold with inlays of precious stones and colored glass. On the forehead one can see the two tutelary gods in the form of a snake and a falcon and, on the chin, the symbolic beard signifying deity. Tut-en-ch-Amun was King of Egypt until about 1333 BC when he was murdered at the age of 18. His grave was found intact in the Valley of Kings in 1922.

Necklace discovered in Italy (Etruscan) dating back to the 6th century BC; Villa Giuglia, Rome.

Figure from Russia, 6th to 7th century BC, 8.6 cm/3.3 inch high; Historical Museum Kiew, USSR.

Human figures have rarely been found amongst the art objects of the peoples who formerly inhabited the steppe of Russia. This dancing nomad, partially executed in gold-plated silver, was discovered near the River Dnepr.

Bull's head from Mycenae, Greece, 1611 BC, 15.5 cm/6.1 inch high without horns, to be seen in the National Museum in Athens. One of the most interesting items which came to light in Grave 1V: the head of a bull fashioned in silver with horns of gold and a rosette on its brow. In addition, many other burial gifts of gold and precious stones were found covering five corpses in this tomb—probably members of the royal family.





Kardan Standard 4×5 in.



Kardan Super Color  
4×5 / 5×7 / 8×10 in.



Kardan Master L  
4×5 / 5×7 in.

# Linhof offers both systems

Only a reliable, universal camera and accessory system which is adapted to future needs can give the photographer the chance of working efficiently and turning out top-quality results. Linhof is in a position to give you good, objective advice how to solve your photographic problems, since Linhof is the only firm in the world which has been producing two perfect camera systems for many decades. TECHNIKA drop-bed, press-view cameras. KARDAN monorail cameras. The TECHNIKA is an all-round camera for advertising and industry, science and art. Also for architecture and copying, for micro/macro and studio work and, with the aid of the coupled rangefinder, for candid photography in the fields of sport, fashion and news.

The KARDAN monorail cameras have every really necessary, photographically-justified kind of movement. Considerable degree of adjustment, even in conjunction with extreme wide-angle lenses, rapid change of format from 2¼×3¼ to 8×10 inch and accessories for extra-long bellows extension.



Super Technika 5×7 in.

Technika 70 2¼×3¼ in.

Super Technika 2¼×3¼ in.

Master Technika 4×5 in.

*Linhof*

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# EXPERIMENTAL EXPERIENCE

## Portrait of a zoom

Variable focus lenses are becoming increasingly popular amongst photographers. They are a familiar tool for the motion picture cameraman, since it is possible to give the impression of approaching the subject without changing the camera position.

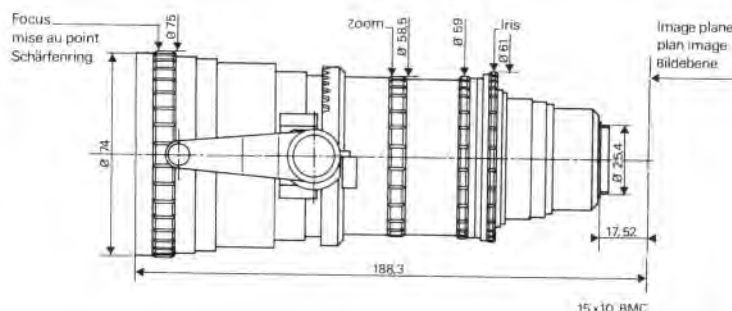
The sole disadvantage which zoom lenses have had up until now—at least as far as professional gauges and formats are concerned—is that close-up work is less satisfactory, with the exception of a few special lenses such as the Macro-Kilar.

Angenieux in Saint-Héand, France, have developed a high-performance 10×15 zoom lens which meets the demands of photomacrography.

### Technical specification:

|                                                            |                          |
|------------------------------------------------------------|--------------------------|
| Focal length:                                              | 10—150 mm                |
| Effective aperture:                                        | T 2.3—T 3.2              |
| Maximum image field:                                       | 12.8 mm diam.            |
| Horizontal/vertical angle of view:                         | H 4°—53°<br>V 3°—40°     |
| Front lens to last lens:                                   | 64—13 mm                 |
| Closest range (from image plane):                          | 1.5 m/4.9 ft             |
| Additional focusing range:                                 | 1.5 to 0.8 m/<br>2.62 ft |
| Full angle of rotation:                                    |                          |
| a) Focusing control                                        | 137°                     |
| b) Zoom travel                                             | 193°                     |
| c) Aperture setting                                        | 101°                     |
| Size of smallest original without using supplementary lens | 26×36 mm                 |
| Ditto with suppl. lens No. 2                               | 13.7×19 mm               |
| Weight:                                                    | 920 g                    |

Top:  
Dimensions and construction of the zoom lens.



### Supplementary lenses:

range measured from film plane  
Series 9 N° 1: 1.5 —0.85 m  
N° 2: 0.85—0.65 m

May be supplied to fit Arriflex "C" mounts, Cinema Product, Eclair, and Neutral-Neutre mounts.

The professional cameraman is very concerned about maximum flexibility in his equipment. This may be interpreted as meaning he wants as large a range of focal lengths as technically possible. Anyone who has worked with the 16-mm film gauge will welcome the enormous zoom scope offered by the new Angenieux lens. Yet, there is one drawback: if one wishes to shoot close up with the lens at a wide-angle setting, one must be prepared to accept a small amount of vignetting. The lens can, it is true, be focused down to a range of 2.6 ft., but for the sake of a better image it is more "reasonable" (Angenieux) to retreat to a distance of 4.9 ft. Should one, nevertheless, desire to work closer than this limit, it is recommended that a focal length greater than 40 mm be selected. Generally speaking, this will prove a handicap in only very few cases. In order to keep the weight and size of the lens down, the manufacturers decided that a compromise solution was unavoidable. One is advised, further, to stop down to f 8 (resp., T 8) in such extreme cases.

The 10—150 mm Angenieux has one further feature worth mentioning: instead of the usual f-stop values, the apertures are expressed in so-called "T-values" which reflect more closely the relationship between effective aperture and focal length.

Angenieux 10×15



## 16 mm projectors

Few amateurs today will still be able to afford a 16 mm projector. The days are long past when the 16-mm gauge was the only one available for private use. This was followed by the 9.5-mm format, but its popularity was largely restricted to the French market. Then came the Double 8 System, but this was really only motivated by the fact that the printing labs could also handle the amateur format in their 16 mm processing plant. The last stage was Kodak's introduction of the cassette system in the form of Super 8 and this was the deathblow to the last 16-mm fans. The quality of Super 8 is now satisfactory, and the simplicity of the cassette system was "just right" for the average amateur.

Thus it is that the use of 16-mm film is now almost entirely restricted to schools, institutes, government departments, industry and the producers of documentary films. Many film distributors are in a position to offer much of their stock also in the 16-mm gauge. Using less expensive 16-mm copies many a small, independent theater can continue to satisfy its patrons. Had they to rely on costly 35-mm projectors, they would have closed their doors long ago or never have got started in business.

The 16-mm projector no longer employs the complicated technology involved in the original movie format. In the search for new solutions, for example, the noisy

and expensive maltese cross movement has been replaced by a quieter and more wear-resistant claw feed system.

Manufacturers of motion picture equipment in many countries of the world are at present working on revolutionary film transport systems. To mention only a few, there is the Hologon Projection System (g.t.c., 8000 München 19), the Hologon System (Hologon, New York) and the Freeway Projector (International Audio Visual, Van Nuys, California). These systems are likely to bring an increase in light output and possibly even improved quiet running. They are, of course, only in the development stage, so we shall just have to wait and see.

We regret that two well-known makes of projector, which were considered standard equipment for sound studios and printing labs not so very long ago, will not be found in the following survey. Siemens and Leitz have withdrawn from this market and left it to the Japanese. Since projectors from these two manufacturers were produced in large series, it is not surprising that these two names turn up very often on the used equipment market. Since both are of excellent quality, there is little risk in buying them — even "unseen"! They have, however, been left out of our list, for they will probably be available for only a short period now.

Gerhard Fromm





## Bauer P 6

### Models:

Bauer P 6 HL for projecting films with optical sound track

Bauer P 6 HT for optical and magnetic sound tracks

Bauer P 6 HM, similar to HT but can also record magnetic sound.

**General remarks:** Compact apparatus for schools and institutes, **Film capacity:** 2000 ft. on reels.

**Film threading:** Manual; may be unlaced by hand at any time. Film drive and picture frequency: Very quiet-running, four-prong claw feed system with low film wear. Projector may be switched from 18 to 24 fps. whilst in operation. The rotary shutter then automatically changes over from three to two blades. This feature guarantees flicker-free image even at Reserve projection and 18 fps. rapid rewind are provided.

**Light system:** 24-V, 250-W halogen lamp.

**Lens:** A range of nine lenses for different purposes is available. (10 to 100 mm focal length.) Also, Bauer Vario, a zoom lens of 35 to 65 mm and f 1.6. For the projection of Cinemascope films, two anamorphic systems may be supplied (Isco and Möller).

**Sound system and amplifier:** All-transistorized amplifier of 20-W sine output, final stage overriding control. Built-in loudspeaker. Extra loudspeaker (10 or 35 watt) available. Optical sound scanning system incorporates silicon photocell. Magnetic sound scanning employs combined recording/playback head.

**Extras:** Mirror for backwards projection, separate rewinder, dust cover, splicer, etc.

**Distributor:** AIC Photo Inc., 168 Glen Cove Road, Carle Place, N.Y. 11514.

## Bauer P6 Automatic

### Models:

P 6 S for showing silent films

P 6 L for playing back optical sound

P 6 TS for optical and magnetic sound

P 6 MS, similar to TS but also records sound magnetically

P 6 Automatic 300, similar to TS but with 300-watt xenon lamp

**General remarks:** This series is similar to the P 6 type of Bauer projector but it features automatic threading and an enclosed housing.

**Film capacity:** 2000 ft. on reels.

**Film threading:** After squaring off the leader with the built-in cutter, the footage is merely pushed into the first set of rollers and the motor does the rest. The end has to be secured, by hand, however, in the take-up reel. If a splice breaks during projection, the drive switches off automatically. The projector also stops automatically at the end of a film. It is not possible to remove footage in mid-reel.

**Film drive and picture frequency:** Four-prong claw system for low-wear film transport; can also handle older footage with partially damaged perforation. In the case of the models "S" and "L" the rotary shutter converts automatically from 2 to 3 blades when one switches from 24 fps. to 18 fps. Still-frame projection.

**Light system:** 24-volt, 250-watt halogen lamp. The "Automatic 300" is provided with a "Marc 300" high-pressure gas discharge lamp which is connected via a ballast resistance and gives four times as much light as a corresponding halogen lamp. The service hours are recorded on a meter.



**Lens:** Nine lenses of focal lengths from 10 to 100 mm are available. Also, 35 to 65-mm f 1.6 Bauer "Vario" zoom and two anamorphic systems.

**Sound system and amplifier:** All-transistorized amplifier of 20 watt output and with final stage fuse control. Provision for extra loudspeaker.

**Distributor:** AIC Photo Inc., 168 Glen Cove Road, Carle Place, N.Y. 11514.



## Bolex Micron 25 E

**General remarks:** This standard projector of the Micron series is limited in its specification to the most essential features. This fact is reflected, of course, in a lower price.

**Film capacity:** Up to 2000 ft. on reels.

**Film threading:** Manual, facilitated by swinging the lens assembly aside.

**Film drive and picture frequency:** Precision, three-prong claw system, similar in construction to all other Micron models. Central function switch and warning diode for excessive Voltage.

Electronically stabilized projection speed at 24 fps. Forward projection may take place with full or reduced light output. (Lamp economizing circuit.)

**Light system:** 24-volt, 200-watt halogen lamp.

**Lens:** All five lenses in the Micron range may also be used on this projector. Provision also for anamorphic attachment.

**Sound system and amplifier:** All-transistorized amplifier for an output of 15 watt at 5 ohm or 10 watt

at 8 ohm. Only intended for footage with optical sound track. 3.5-watt loudspeaker is built in and coaxial to the direction of projection. An additional loudspeaker can be connected.

**Transport:** Protective hood with accommodation for take-up reel.

**Distributor:** Paillard Inc., 1900 Lower Road, Linden, N.J. 07036.

## Bolex Micron 27

### Models:

Micron 27 J for optical sound, manual threading

Micron 27 JA as above but with automatic threading

Micron 27 JM also has magnetic sound feature, manual threading. Micron 27 JAM as JM but with automatic threading.

**General remarks:** The entire Micron range of equipment has been especially designed for long service life in daily use.

**Film capacity:** Up to 2000 ft. on reels.

**Film threading:** In the automatic versions one only has to square the end of the leader with the aid of the cutter located at the front of the projector and feed it into the upper transport roller. On starting the motor, the film is then laced automatically. Finally, the end is secured in the take-up reel. In the simpler versions the film has to be threaded by hand, which is facilitated by swinging out the lens assembly.

**Film drive and picture frequency:** Both speeds of 18 and 24 fps. are electronically controlled. Reserve projection and rapid rewind. All drive functions are selected by means of one, central switch. Three-prong claw system enables one to project older footage.





**Light system:** A 24-volt, 250-watt, cold-mirror halogen lamp provides good illumination of the screen.

**Lens:** Focal lengths of 35, 50, 60 or 75 mm may be selected. Also, 35 to 65 mm f 1.6 Vario lens is available. Cinemascope films may be projected with the aid of an anamorphic attachment.

**Sound system and amplifier:** All-transistorized amplifier of 20-watt output at 5 ohm (13 watt/8 ohm). A 10-watt loudspeaker is incorporated in the transport lid together with 50 feet of cable. Mike and phono inputs (DIN).

**Distributor:** Paillard Inc., 1900 Lower Road, Linden, N.J. 07036.



Both projectors can be supplied with either a 500 or 900-watt xenon lamp.

**General remarks:** These projectors are intended for stationary operation in, e.g., cinemas or studios.

**Film capacity:** Reels for up to 5000 ft. can be attached.

**Film threading:** Manual, by means of swinging the lens aside.

**Film drive and picture frequency:** Similar to other Micron projectors (see Micron 27). Electronically stabilized for 24 fps.

**Light system:** The 500 or 900 xenon lamps produce an extremely powerful light and retain constant color temperature. Rectifier, inductor and ignition device are all accommodated in the base of the projector. Here one also finds a steplessly-variable resistance for controlling the brightness and a meter for recording service hours.

**Lens:** Accepts any of the lenses available in the Micron range.

**Sound system and amplifier:** All-transistorized amplifier of 20-watt output. Reproduction of optical sound via photodiode and sound exciter lamp (6 volt, 1 amp). Magnetic sound via easily-accessible sound head. Built-in loudspeaker control. Mike and phono inputs. Socket for an inspection lamp with automatic on/off switch.

**Distributor:** Paillard Inc., 1900 Lower Road, Linden, N.J. 07036.



## Bolex Micron 28

**General remarks:** The model "28" differs from the "27" series through push-button controls for the frame speed (variable from 15 fps. to 30 fps.). The button marked "s" permits still-frame projection and the button "f" is for studying individual phases of a movement. Since the general specification corresponds to that of the "27" series, it is only necessary to mention the deviations. Three-blade shutter to minimize flicker at slow projection speeds. These models also have a socket for a secondary amplifier which enables one to connect up the projector to an available or in situ loudspeaker system.

**Distributor:** Paillard Inc., 1900 Lower Road, Linden, N.J. 07036.

## Bolex Micron 19

**Models:**

Micron 19 for optical sound  
Micron 19 M for magnetic and optical sound

## Bolex 421

**General remarks:** Versatile professional apparatus for wide range of applications.

**Film capacity:** Up to 2000 ft. on reels.

**Film threading:** Simple-to-operate, fully automatic film threading device. In the case of a film "rip-up", it is possible to remove footage by hand.

**Film drive and picture frequency:** The carefully designed claw feed system is manufactured to very high tolerances and, in conjunction with an adjustable 2 or 3-blade shutter, guarantees an absolutely steady picture and low film wear. The speed may be set by push buttons for 18 or 24 fps. and can also be regulated within a range of 15 fps. to 30 fps. Still-frame projection is possible.

**Light system:** 24-volt, 250-watt halogen lamp with cold mirror. Constant color temperature throughout service life of lamp.

**Lens:** The following focal lengths are available: 35 mm f 1.3, 50 mm f 1.3, 70 mm f 1.6. Also a zoom lens 35 to 65 mm f 1.6. Practically any lens of 42.5 mm diam. may also be used.

**Sound system and amplifier:** All-transistorized amplifier in three push-in modules with output of 25 watt. 12-watt loudspeaker in lid. Provision for extra loudspeaker. There is a safety device to ensure that when making a magnetic recording the original sound track is not erased. (E.g. in schools.) A built-in mixing head enables one to superimpose sound, etc. Mike and phono inputs, also extra speaker.

**Accessories:** Anamorphic attachment of ratio 1:2. Since the frame line on 16-mm film is too narrow to permit an extension upwards and downwards — as is possible with 35-mm film — one arrives at an aspect ratio of 1:2.66 on the screen.

**Transport:** The protective hood contains the loudspeaker and can also accommodate a 2000-ft. reel.

**Distributor:** Paillard Inc., 1900 Lower Road, Linden, N.J. 07036.



## Eiki 16 mm

**Models:**

Eiki RT-0 for optical sound, loudspeaker in lid.

Eiki RT-2 for optical and magnetic sound, 1/sec. in lid.

Eiki RT-3 can also record magnetic sound, otherwise as RT-2.

Further, the RM-2 and RM-3 versions have manual lacing-up, the RST-2 and RST-3 have fully automatic lacing from reel to reel.

**General remarks:** Compact apparatus, easy to transport.

**Film capacity:** Reels for up to 600 m/2000 ft., may be extended to 4000 ft.

**Film threading:** In the case of the automatic or semi-automatic models by means of squaring the end with the built-in film cutting device. Manual threading is possible at any time.

**Film drive and picture frequency:** Low film wear through nylon feed sprocket and special guide channels. Electronically stabilized speeds for 18 and 24 fps. Reserve switch, still-frame projection with heat filter, rapid rewind without changing reel.

**Light system:** A 24-volt, 250-watt halogen lamp with cold mirror ensures good illumination of the screen.

**Lens:** Standard lens is 50 mm f 1.3, focused by means of micro-screw. In addition, a range of fast lenses from 10 to 100 mm is available. Zoom lenses and lens attachments may also be used. A frame may be swung in front of the lens to permit the attachment of an anamorphic lens. Sound system and amplifier: 20-watt wide-band amplifier, fully transistorized with separate controls for treble and base. Loudspeaker is built into the lid, 50 to 12,000 Hz playback.

**Accessories:** Eiki continuous projection attachment for up to 660 ft. of film; may be mounted on projector itself or set up beside the projector with separate drive. Adjustable mirror assembly for projecting backwards (i.e. shop window advertising).

**Transport:** Protective hood with side pocket for accessories.

**Manufacturer:** Eiki Industrial Co. Ltd., 43 Manzai-cho, Kika-Ku, Osaka/Japan.





## Eiki EX 2000 A

**General remarks:** A compact apparatus with a total weight of 24.8 kg. using the extremely powerful 350-watt xenon lamp.

**Film capacity:** Up to 2000 ft. on reels; may be extended to 5000 ft.

**Film threading:** Automatic or manual, may be unlaced by hand at any time.

**Film drive and picture frequency:** The mechanical specification corresponds to that of the other Eiki models. Low film wear and automatic looping device. Speed 24 fps.; reserve switch, Rapid rewind without changing reels.

**Light system:** The 350-watt xenon lamp provides an extremely high level of illumination for projection onto large screens. A further feature of xenon illumination is that the color temperature and clarity of the envelope remain constant throughout the life of the lamp.

**Lens:** Standard lens is 50-mm f 1.3. Other focal lengths available (see Eiki RT-0).

**Sound system and amplifier:** All-transistorized 25-watt amplifier with separate controls for treble and base. Loudspeaker in lid. An extra 30-W loudspeaker may be connected up by means of 65-ft. cable.

**Transport:** This is the only apparatus on the market with xenon lamp which one can regard as "transportable". Protective hood with accommodation for empty reels.

**Manufacturer:** Eiki Industrial Co. Ltd., 43 Manzai-cho, Kika-Ku, Osaka/Japan.

## Elektor T 16

### Models:

Elektor T 16 A optical sound playback with 7-watt amplifier  
Elektor T 16 B optical sound playback with 15-watt amplifier  
Elektor T 16 C magnetic and optical playback, 7-watt amplifier.  
Elektor T 16 D as for C, but with 15-watt amplifier.

**General remarks:** Very compact, coaxial arrangement of the reels.

**Film capacity:** 2000 ft. on reels. It is possible to obtain, as an extra, a longer reel arm which then accepts reels for up to 4000 ft. of film. (Running time of almost two hours!)

**Film threading:** Manual, by following white guide line. A small lamp assists lacing in a darkened projection room. Fool-proof operation through clearly marked buttons.

**Film drive and picture frequency:** Three-prong claw system ensures steady film advance, even when showing older footage. By simply shifting a drive belt, it is possible to change over from 24 fps. to 18 fps.

**Light system:** 250-watt halogen lamp provides plenty of illumination and one can switch over to an economizing circuit when the full lamp output is not required. (Increases lamp life.)

**Lens:** The projector is fitted with a prime 50 mm coated lens. The following focal lengths are also available: 25 mm, 35 mm, 65 and 75 mm.



**Sound system and amplifier:** Flywheel ensures absolutely smooth transport and high degree of steadiness. Light valve is adjustable. The transistorized amplifier is interchangeable on the modular system, it being possible to insert either a 7-watt or 15-watt amplifying unit. Mike and phone inputs. Low running noise permits one to set up the projector in the auditorium.

**Transport:** The entire projector, reels and some equipment may be accommodated in a transport case which, furthermore, contains the loudspeaker.

**Manufacturer:** Hasso-Projektions-technik, Goethestraße 28, D-8000 München 2.



## Hasso 16 mm Attachment Projector

**General remarks:** Especially designed for attaching to an already available 35-mm projector.

**Film capacity:** Normally, up to 2000 ft. of film. It is possible to fit the projector with longer reel arm and then the maximum is raised to 4000 ft. A special 90°-version enables one to still operate in a cramped projection room.

**Film threading:** Very easy to lace up. On switching on the projector the film transport mechanism automatically engages in the perforation, so there is no fumbling for the right position of the footage. This easy-to-thread feature makes the projector especially suitable for dubbing studios where short lengths often have to be threaded up.

**Film drive and picture frequency:** Three-prong claw system ensures steady film transport, even in the case of older footage (e.g. in small, independent theaters). Drive motors are either three-phase synchronous or alternating current asynchronous. Speeds 24 fps. or 18 fps.

**Light system:** Since this projector is intended to be used in conjunction with an available 35-mm projector, the light source of the latter is already the determining factor.

**Lens:** The following focal lengths are available: 25 mm, 35 mm, 50 mm, 65 and 75 mm. An anamorphic attachment for Cinemascope films may likewise be mounted.

**Sound system and amplifier:** Flywheel system incorporating photodiodes for optical sound playback and a high-fidelity head for magnetic sound. Transistorized pre-amplifier with output maximum of 1.5 volt/40 ohm (+6 dB). Final amplification via available optical, resp., magnetic sound unit and existing loudspeakers.

**Special feature:** This supplementary projector was developed particularly for mounting on existing 35-mm projectors without the need for extensive reconstruction work. 16-mm films can be shown, for example, through the same, single projection window. As soon as the attachment has been pushed aside, the 35-mm projector is once again ready for operation.

**Manufacturer:** Hasso-Projektions-technik, Goethestraße 28, D-8000 München 2.

## Hokushin SC 10

### Models:

SC 10 for optical sound  
SC 10 M for optical and magnetic sound.

**General remarks:** "SC" stands for Sound and Circloading, the latter





drawing attention to the unusual automatic film threading system.

**Film capacity:** Accepts reels of up to 2000 ft.

**Film threading:** The footage is merely attached to a clip at the end of the threading arm and the motor started. The arm then feeds the film, entirely without assistance, through all the guides and rollers. The pressure plate with the lens is likewise automatically swung aside.

**Film drive and picture frequency:** The claw feed system and precise film guides are designed to take great care of the footage and guarantee a steady picture. Only for 24 fps. Reverse projection possible.

**Light system:** 24-volt, 200-watt halogen lamp with parabolic mirror ensures good screen illumination.

**Lens:** The prime lens is a 50 mm f 1.4 Canon. A zoom lens and an anamorphic attachment are also available for the projection of Cinemascope films.

**Sound system and amplifier:** A fully-transistorized amplifier in combination with a 6-volt, 1-amp sound exciter lamp are behind the good sound playback. The built-in loudspeaker is adequate for a small room. A larger, accessory speaker is available.

In the "M" version it is also possible to make sound recordings on magnetic striped film with the aid of ancillary equipment. There is provision for remote control.

**Transport:** Protective cover, no accommodation for reels or accessories.

**Manufacturer:** Hokushin Electric Works, Ltd., 30-7, 3-chome, Shimomaruko, Ohta-Ku, Tokyo, Japan.

## Hokushin X 300

**General remarks:** The number-and-letter combination after the name refers to the 300-watt xenon lamp employed which makes it suitable for projection under movie theater conditions.

**Film capacity:** Reels with a capacity of 2360 ft. can be used.

**Film threading:** Facilitated by swinging aside the lens assembly.

**Film drive and picture frequency:** Precise claw feed system in conjunction with only two, 16-tooth transport sprockets ensure that the footage is advanced with as low wear as possible. If older footage happens to lose its loop, an automatic loop-former restores order immediately. In such a case the projector does not have to be stopped. Fixed speed of 24 fps. Reverse projection possible.

**Lens:** Standard lens is 50 mm f 1.6 Canon. Zoom lens and Cinemascope attachment available.

**Sound system and amplifier:** Choice between playback of optical sound or magnetic sound by means of a simple sliding switch. All-transistorized 25-watt amplifier. With the aid of an ancillary apparatus it is also possible to record sound on magnetic-striped film. Facility for remote control via cable.

**Transport:** The basic equipment of this projector consists of the projector itself (with protective cover), power supply pack, loudspeaker and an accessory case for cable and take-up reel.



**Manufacturer:** Hokushin Electric Works, Ltd., 30-7, 3-chome, Shimomaruko, Ohta-Ku, Tokyo, Japan.

## Viewlex Super 1600

**Models:**

Super 1600 L for optical sound, manual film threading  
Super 1600 LM as for L, but with extra magnetic sound playback  
Super 1600 L/Aut same as L, but with automatic threading  
Super 1600 LM/Aut same as LM, but with automatic threading  
A special version with still-frame projection is also available.

**General remarks:** A rather large but, nevertheless, robustly made projector.

**Film capacity:** 2000 ft. on reels.

**Film threading:** According to model, either manual or automatic (see above). The assembly for automatic film threading can be taken off the projector quite easily. Manual lacing is then possible. Fool-proof operation through easy-to-grip, multi-stage program switch.

**Film drive and picture frequency:** Due to precision-ground and hardened claw, the film is transported gently. Choice of speeds of 24 fps. or 18 fps. by means of switch.

**Light system:** 24-volt, 250 halogen lamp. Incorporates concave heat-absorbing mirror.

**Lens:** Prime lens is 50 mm f 1.6. Lens mount accepts other lenses of 52 mm diam or, via an adapter, 42 mm. A zoom and other focal lengths are also available. Provision for attaching an anamorphic system.

**Sound system and amplifier:** Flywheel made of dynamically balanced, solid zinc. Amplifier has silicon transistors and 15 watt output. Socket for low-ohm microphone and 6—8-ohm loudspeaker.

**Transport:** Protective hood with space for empty reel and power cable.

**Manufacturer:** Hasso-Projektions-technik, Goethestraße 28, D-8000 München 2.





Although, like the rest of the photographers represented here, R. Brandt is no amateur, he lent this shot an unmistakable "amateur" flair, just to show that good nude photography can be achieved with quite simple techniques. He used a method of lighting which is still popular with amateurs: high-key.

*Page 54:*

Michael Gnade is a full-time professional. Clever lighting techniques and well-balanced composition are characteristic features which raise his nude studies above the average. This is a good example for amateurs to follow.

# The nude with an amateur flair









*Above:*

Many a good photograph has been taken "incidentally" in well-known commercial studios. Having carried out an assignment according to the client's stipulations, the photographer begins to "play around" with his camera just as if he was pursuing a hobby. This is exactly how this photo came about in the N+C Heinrich Studios in Stuttgart.

Whereas the professional photographer will claim that he can tackle any kind of photography successfully, the amateur is more likely to admit that he has to devote a good deal of thought to his picture first, to work it out and extract something usable from it. Of course, the pro has all the necessary apparatus at his disposal, such as system cameras, electronic flash and other studio equipment, whereas the amateur often has to get along with simpler or improvised equipment, especially in the darkroom. In spite of this, one frequently sees photos—known to have been taken by an amateur—which are far more convincing than those turned out by many a professional. It must be remembered, however, that the motivation is different in each case. The pro has to give con-





sideration to his clients wishes, otherwise the next assignment will probably go to his competitor. He must amortize his equipment and cover the running costs. His way of thinking is definitely characterized by the economic aspects. There is little time left over after a session for experimentation; the models are also prohibitively expensive. A really "free" composition is seldom likely to enter the professional photographer's mind, since most of his work is rationally organized and closely connected with a definite aim or purpose.

*Top left:*

This is an exemplary shot taken by an amateur which is hard to criticize. Notice the typical features: the model was obviously an acquaintance of the photographer and not booked through an agency, experimentation with the lighting and a somewhat dilettante pose. Yet, the picture pleased the editor at the very first glance.

Photo: Heinz Kemp, Schweinfurt

*Top right:*

M. Germann, Utrecht, is a Dutch photographer from whom we have often received work of a "professional" standard. This picture can serve, however, as a good example of the style and technology which an amateur should strive for from the outset: classical, harmonious composition; diagonal flow; high-key lighting; etc.

Two masterpieces taken by the well-known fashion photographer Walter E. Lautenbacher, Leonberg. Such photographs are, in actual fact, beyond the scope of the average amateur since, in the very first place, he cannot obtain or pay for the top models who are so essential for this kind of photography. Hasselblad 500 C/M, 80 mm Planar, Kodak Ektachrome X.



If he can afford to, the amateur can fully utilize the time for which the model has been booked, taking it easy with each shot. In spite of his modest means, a skilled amateur can achieve remarkably impressive results. What is it, however, which reveals the amateur touch?

As already indicated, it is possible to tell whether much expenditure was involved in a particular picture. A small number of pros, however, have been trying recently to give the impression of the more planless, spontaneous kind of photography.

The examples shown here were practically all taken by commercial photographers. In making his choice, however, the editor selected pictures which had something "amateur" about them. This term is not intended to be derogatory in any way. It is, namely, not an easy matter to obtain "straightforward" nude photos from amateurs. The majority of nonprofessionals have great difficulty in finding suitable models. Usually they invite young girls from their own circle of acquaintances—but this is often plainly noticeable. Such "hobby" models are not quite at ease and they have little idea of correct movement. Occasionally the amateur has the good fortune to run into the natural model who has no inhibitions about posing in front of a camera.

In other words, the features which reveal the hand of an amateur may be immediately apparent, but this does not mean that the picture is in any way inferior. Although most amateurs have to contend with improvisations and a lack of means, some of them produce outstanding work in this field.



# Controlling the contrast in color reversal printing

Hans Bortsch

This magazine has often brought up the subject of influencing the contrast in current color and black-and-white processes. Even the professional will not be able to overlook the growing importance of the direct process based on color transparencies, although in many respects his attitude and requirements are likely to differ from those of the amateur or the large-scale photofinisher. Plate-makers, industrial studios and publishing houses have become thoroughly accustomed to large transparencies as a means of selection and as a printing original in the course of the last fifteen to twenty years. This development has been influenced, to quite an extent, by the photographers themselves, since the working-up of paper prints in the lab was by no means child's play in past years, and there still remains the tricky problem of reproducing such reflection copy. It is understandable, therefore, that the trade, as a whole, was prepared to put up with the drawbacks of reversal film as original copy.

It is perfectly conceivable that the course of events would have been different if we had possessed the present-day color negative/positive technology at the time when colored illustrations in advertising and other publications started to become so popular. It is no secret that it is difficult to change old habits; unless the new counter-forces are appreciably stronger, inertia is likely to thwart a turn-around. For the time being, at any rate, no such change seems to be in sight.

One thing is certain: the store of transparency material—from the amateur's 35-mm slide collection right through to the extensive archives of the international picture agencies—is enormous and defies any estimation of its total value. It is therefore quite obvious that the possibility to produce high-quality duplicates or paper prints via the *direct process* (without the necessity of preparing costly internegatives or masks) is a most genuine and urgent need. What is less obvious is whether the quality of the available materials and processes is really usable or, especially, whether it approaches the

standards expected by a professional. It is not possible to answer this question with a clear Yes or No; one has to be a little more specific in phrasing the question. Much depends on the relative importance of the contrast-control problem. This has long been the Achilles heel in any direct reversal process, as most photographers know only too well.

Recently, however, two new processes available on the international market have brought welcome relief in this respect: Cibachrome P 18 and Ektachrome RC 14. Furthermore, the original emulsions have undergone considerable improvement since their first appearance on the market (in the case of the Kodak material, without change of the designation) and one is justified in saying that, with the clever application of certain tricks (not to be found in any of the instruction sheets), it is perfectly possible to obtain results which are in no way inferior to those of the negative/positive method. This is quite apart from the advantages to be drawn from the greater simplicity, etc., of the positive/positive system.

It is only necessary to mention here the most essential, practical differences between the two processes. Also in the case of Cibachrome P 18, we have a dye-destruction printing material in which the dyes are destroyed in a bleaching bath in proportion to the density of the silver image. The process permitted the Ciba scientists to use dyes which are extremely fast to light, thus making subsequent treatment in stabilizing solution or with UV protective spray superfluous. It is very pleasant to discover in practice just how short the process is—without any intermediate exposure—and how generous the working tolerances are.

Ektachrome 14 RC is based on chromogenic process and involves 4 to 6 working stages, excluding washing, and a second exposure to white light. This is not quite so troublesome as may appear at the first glance since, in the first place, they are all brief. What is of greater significance is the fact that once the basic filtration for a particular film type, paper

emulsion batch and enlarger combination has been established through test series, one will require to alter the filtration only slightly—provided the transparencies have no color bias. A further money-saving plus point: The hue and approximate density of such corrective filtration can be carried out visually without the aid of a color analyzer.

In spite of the improvements mentioned, there still remains the tendency of such printing material to build up the contrast; it is just characteristic of the system and partly due to the fact that most slides have too steep a gradation to serve as originals for direct enlarging. When one is aware of this phenomenon from the outset and takes additional measures to reduce it to a reasonable level, it is perfectly possible to produce copies or enlargements of a professional standard by means of the direct positive method.

One must proceed here in a systematic fashion and be quite certain which kind of original requires treatment in one of the following ways:

1. An increase in contrast (interesting pictorial effects are possible)
2. A local suppression of certain areas, resp., emphasis of others in order to bring about an optimum effect.
3. Either alone—or in combination—a flattening of the gradation through cutting the developing time and/or additional optical aids.

With ref. to 1): Flatly illuminated, slightly overexposed transparencies are ideal for normal treatment. To what extent it is desirable to boost the contrast of a particular transparency for the sake of an enhanced effect is a matter of taste and hence, like all subjective judgements, cannot be laid down in any hard and fast rules.

With ref. to 2): Experts in black-and-white darkroom magic will be familiar with the "last resort" of dodging and burning-in. The finest quality is, na-



mely, *not* to be achieved by resorting to the softest grade of paper but by keeping to one grade harder than would appear feasible and then "rescuing" the highlights by holding them back and the shadows by giving them a selective, subsequent exposure. In color printing, of course, one only has a single grade of paper to work with, but the comments about burning-in and dodging apply to the whole field of color photography. The situation is, in fact, more advantageous in the positive/positive method, because the excessive amount of contrast caused by an average slide when printed is just of the right degree to be easily reduced to an optimum by the manipulations mentioned. The author's own experience has shown that the majority of transparencies which would otherwise have led to prints with washed-out highlights and/or little detail in the shadows can be handled in this way. It is also the method which guarantees the least loss of information-transfer and the most perfect from the technical point of view.

Most readers will have already noticed above that the dodging procedure is carried out in reverse to that practised when enlarging from a negative, i. e., the highlights must be given less exposure, and the shadows must be given a longer exposure to lighten them. The dosage required to bring about the desired amount of correction is relatively generous: double the exposure time is just about sufficient to effect a slight brightening, and vice versa. This is to be seen as an advantage over the negative/positive system, since the margin for error is broader. There is less chance of "over-doing" matters and discrepancies are hardly noticeable. Only when all efforts in this direction fail to reduce the contrast, should one fall back on the final method below.

With ref. to 3): The characteristic curve can, in principle, be flattened by shortening the first development or by giving a so-called pre-flash exposure. All those methods involving masking procedures of any kind have not been mentioned here in view of the considerable amount of additional work entailed.

3.1) In the case of Cibachrome as well as Ektachrome 14 RC, it is possible to soften the gradation by reducing the time in the first developer. The paper sensitivity is, of course, reduced, but what is more serious is that, when certain tolerances are exceeded, the filtration is not the same as that for the standard time and the colors tend to be somewhat degraded. Above all, it is the white hues

which are likely to suffer. This method is therefore more feasible in the case of subjects with dark colors and should be avoided where pastel shades predominate. Adequate and careful pre-washing is therefore important if the developing time is to be cut. A further recommendation is an additional washing stage between the first developer and stop bath in the case of Ektachrome 14 RC. These steps are to ensure that development takes place uniformly over the whole print; they have no effect on the tolerances concerning the color rendition. When printing transparencies of average density without any white tones, one can cut the standard development time for Cibachrome by up to 40% and about 20% for Kodak 14 RC and Tetenal UK II—assuming the necessary precautions are taken.

3.2) In addition to 3.1), but also independent of it as well, one can reduce the contrast by giving the photopaper a brief, preliminary exposure. The simplest way—and the safest as far as color balance is concerned—is to interpose a diffusing sheet of neutral color in the path of the rays between enlarger and easel. The flattening of the gamma curve is proportional to the intensity of the pre-exposure. The most suitable kind of original for this type of manipulation is a transparency with predominantly light tones. Once again, the criterion as to how large the dose may be is to check the white portions of the print and see whether they have assumed a color bias tending towards the general, dominant hue of the picture. Experience would indicate that values of up to about 20% of the main exposure are not detrimental and are often sufficient to have a most beneficial effect. It is sometimes possible to exceed 20%, but it is difficult to quote any figures here, since much depends on variable factors, such as the density of the diffusing sheet used. For the latter one can also employ, if available, the typical diffusing filters or domes from color analyzers.

A variation of this method is to use electronic flash indirectly. The necessary ultra-short exposure time can be achieved with the computer-type of unit set to "automatic" and released against a white card or wall at close range. Of course, on account of the much higher color temperature and reciprocity failure, there will be a pronounced shift in color balance. It need hardly be mentioned that such a solution should only be sought in extreme cases and must be preceded by several trial exposures.

In exceptional cases, and especially in the field of largeformat photography, there always remains, as a final resort already touched upon, the possibility to cut the contrast down by preparing silver masks. This exceeds the scope, however, of the present article.

To sum up, one can therefore say that with thoughtful application of the methods described it is possible to achieve a print quality of optimum contrast—even at high magnification ratios—which can stand comparison with the negative/positive process. The essential advantage, apart from the alleviations in lab technique already discussed at length, is to be found in the improved transfer of information. Anyone who is used to focusing color negatives on the easel with the aid of a 10× magnifier will immediately notice the difference with a transparency inserted in the negative stage: the grain and contour sharpness are superior, even in the case of the current reversal emulsions for roll film and largeformat sheet film. Although this improved acutance may not be of quite such vital importance for the formats usually under discussion in this magazine as it is for 35-mm film users, it is a pleasant bonus accompanying the direct process.

*Right page:*

Portrait photo taken by J. P. Kilfitt. Munich.

*Page 60:*

Photo: Rolf Jack/Swiss.

A very special photo taken for a fashion catalog in connection with the Olympic Games.











SCOTCH No. 10 DECANTER



PRODUCE OF SCOTLAND



Several decades ago the principle of the bellows camera was so widely known and accepted by everybody that it was possible to use simply a bellows with lens attached as a symbol for photography in general. This impression was obviously so profound that even today there is no more obvious or universally understood language for a sign forbidding photography, for instance, than to employ the same old symbol cancelled with a large cross. When one thinks about it, what other symbol could one possibly take that would be comprehensible to everybody? Perhaps a typical Pocket camera, a twin-lens reflex or even a rangefinder camera? All these forms would probably not be understood, generally. Of course, there are not many of these bellows cameras around nowadays: professional photographers use them in studios or ancient wizards are still to be seen conjuring with some camera-contraption in front of classical monuments. I would not like to say, here, who photographs whom the most.

How many bellows-type cameras are actually produced today? Although I have no exact figures at my disposal, I think 1% of total camera production is probably a fairly generous estimation. And yet, in spite of this minute proportion, the bellows symbol still remains as convincing as ever. This started me thinking, and if the reader is also ready to suppress any subconscious nostalgic feelings for bygone days which may come swimming up, then his rational fantasy will be sufficient alone to rediscover a principle which, as far as space-saving is concerned, is absolutely unbeatable. Perhaps it is only surpassed by the discovery of silver bromide grain. All the inventions in the field of electronics—including the storage media in data processing systems—with their dramatic consequences for our industrialized world have not managed to produce anything superior, as far

as information density is concerned, to a conventional sheet of film processed in an average developer. But then who is interested, for example, in the amazing information capacity of a modern microfilm? I only embarked on this little excursion to try and show how something really good, which one can hardly improve, is taken for granted and forgotten. The bellows acquired, at least, a symbolic importance even although the majority of modern cameras has long since dispensed with the principle.

Let us turn to practical considerations. Anyone who takes photography seriously requires, apart from a reliable camera, a considerable battery of equipment: interchangeable lenses, film holders or magazines, filters, etc. If one were to lay on the bathroom scales, one after the other, all the items which might conceivably be needed a foreign expedition, the shock would be considerable. Even the sight of so much equipment is sufficient to start one thinking in the direction of a camera system with a smaller format. Is this justifiable? The answer depends largely on whether any two systems are really comparable; it might be true, for example, in the case of exchanging a 6×6 SLR outfit for an equivalently convenient 35-mm system. However, a roll-film bellows camera (folded together) is not any heavier or bulkier than many a medium-format single-lens reflex, even when the negative area is somewhat greater. The most important point which I wish to make here is, though, that the bellows replaces the tubes of practically all the lenses. When the lenses are fairly numerous and principally of long focal length, the advantage becomes increasingly obvious. If the weight and volume of the two lens systems are added up and progressively compared, there comes a point when the bellows system begins to weigh definitely less than the other. This is, of course, not the *only* advantage of

the view or technical camera with its bellows: there are all those useful movements such as rising front, swing back and Scheimpflug. It is therefore rather surprising that the sales figures of the rigid type of camera are so much higher than those fitted with bellows. The arguments currently heard are well known and, in certain respects, quite understandable: the former are faster to use and after focusing on the screen, the rest is usually automatic.

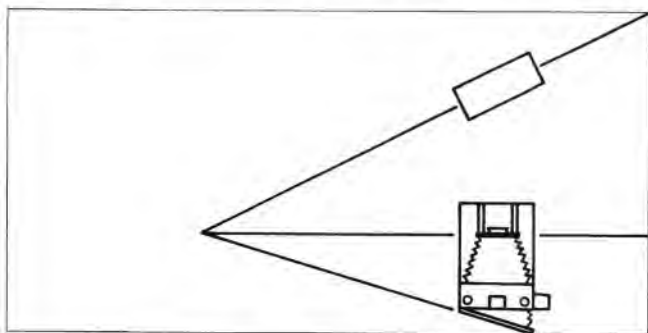
There is no denying this, but have such protagonists of the SLR not forgotten that there are bellows cameras not only with all manner of movements to correct perspective but also with parallax-corrected view/rangefinder and incorporating a comparable degree of speed and convenience, too? The question I wish to pose, therefore, is which camera principle, taken all round, really offers the most? The answer is certainly not to be found in taking two metal camera cases packed with two complete sets of comparable equipment and weighing them.

For the sake of further comparison—and reduced to essentials—one can find an example in the field of 35-mm cameras: the excellent Leica M. This model can be fitted with a reflex attachment when it is found advantageous, but it may be removed again to enjoy the benefits of the rangefinder principle in situations where the latter is preferable, e. g., low-light candid photography. Here the "performance: weight" ratio is unsurpassed. There is nothing new about this system either. If its functional virtues alone are not enough to convince, try weighing a complete outfit or packing it into a hold-all bag!

For the discriminating photographer, the remaining arguments about super-automatic features are no more than "nice to have" for those normal-situation (and probably rather boring) shots.

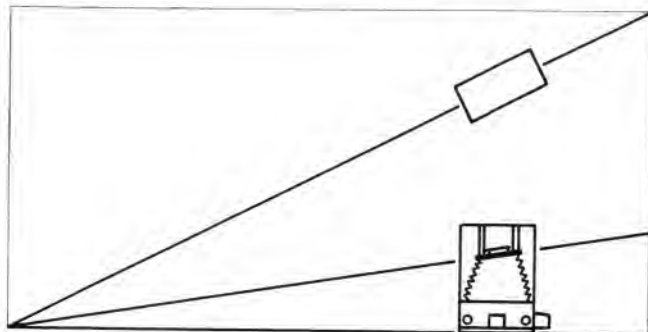
Hans Bortsch

## A word in favour of the bellows camera



A photographic situation which can only be mastered by means of a bellows camera.

Left: Swinging the camera back.  
Right: Swinging the lens standard in order to influence the appearance of the perspective.  
Sketches prepared by Linhof, Munich.







# Hans Gundel

## A SELF-MADE MAN

His place of work: a medium-sized printing office with an adjoining newspaper publishing house in a small town in Franconia.

His tools of trade:  $2\frac{1}{4} \times 3\frac{1}{4}$  and  $5 \times 7$  inch view cameras, a process camera, an enlarger, copying and phototypesetting apparatus.

His vernacular: that of the process photographer—continuous tone and diazo film, point-source and plate copy, blockingout and montage—that of the compositor with terms such as Didot-Antiqua or other types and 8-point Petit or 12-point Cicero—as well as that of the phototypesetter with expressions like fixed values, variable values, right flush, left flush, line spacing, etc.

He was born in 1930, and his hair has turned grey at the temples. An artisan who has learnt his job the hard way, one might assume. Yet, if one traces time back a mere six years, one would find the same man in the inherited family mill grinding rye for a bread factory and farmers of the surrounding area. A master craftsman and part-time farmer who planted corn and potatoes, kept pigs and bred cattle. For 25 years he managed to nourish, in a reasonable manner, a family of seven, and many others would have been quite content. But not Gundel.

As a small boy he had quite often earned a bag of candy from a city gent—some folks said he was a bit nuts—who was a keen wildlife photographer. He helped him find nests, set up the equipment and, if his patron was kindly disposed, he was even allowed to release the shutter sometimes. Unfortunately the old man died while Gundel was still a teenager, but the experience gave him the incentive to try the same. The usual course of events followed. First, a simple camera was bought from carefully-saved pocket money. Later, this was exchanged several times for a better one and further items of equipment added. Large amounts of photoliterature were voraciously consumed. A camera club was joined, pictures sent to exhibitions. Not long after, the first awards were received but it also became clear that a larger negative format was needed. In 1955 a  $2\frac{1}{4} \times 3\frac{1}{4}$  Technika was acquired together with the Schneider set of lenses. The foundation stone for serious photography had been laid. To perfect his skill, he subscribed to the magazine "Grossbild-Technik" (today: International Photo Technik). Later he bought a used  $5 \times 7$  inch Kardan Color and a  $2\frac{1}{4}$  SLR.

Then, however, the first difficulties loomed up on the professional horizon. The general trend in the economy towards specialization, towards the larger kind of mill, robbed the small handicraft enterprise of its very existence. Hans Gundel, now 40 years old, was forced to start all over again. Since he was a realistic thinker, he decided on the simplest, on the safest solution. He applied for a job at the printer's mentioned at the beginning, was successful, but had to be content with unloading the lead for the composing room, dragging the printing paper to the machines, running errands, clearing the snow away or sweeping the court. At the same time, however, he poked his nose into all manner of things which did not really concern him, and since there was a shortage of labour at that time, this worked out to his advantage. Soon he was often to be found lending a hand in the stereotype department, and in the printing office he had to keep an eye on the platen machines. When a new Klischograph engraving machine was acquired, he was put in charge of its operation. He took up contact with members of the editorial staff, and they were quite glad to hear his suggestions or advice on matters concerning photography. After a time, he was allowed to instal a darkroom in the attic of the office building. Here he developed and printed the urgent films which came in. (Previously, such pictures would appear with a delay of two days.) He also took on the task of copying and photographing small objects such as coins, football cups and other kinds of prizes and medals. His "beautiful photos" became well known in the weekend supplement, and there was also a demand for his news coverage and aerial pictures.

A year later offset printing machines were installed in the printing office. Film copies of the lead type had to be prepared via baryta paper. Thanks to his photographic knowledge, Gundel was put on to the job right from the start. Some of the basic processes were second nature to him, but there was also a lot of new photographic territory which had to be explored. Once again he taught himself from books and trade magazines and from the reps of the various equipment and film manufacturers. Soon he was getting along nicely and could master such process techniques as screening, overprinting, blocking-out and even color separations from line originals. The time came, however, when he was no longer able to cope with all this work on his own, especially since phototypesetting was also taken up in the program. He was given a







colleague, a compositor who had learnt the essentials of the new medium in evening classes. Together they now turn out all the necessary black-and-white work for the in-plant offset printing machines.

This ranges from continuous tone photographs taken with either the roll-film Technika or the large Kardan Color, through the enlarging stage, layout, phototype process, right up to the finished leaflet or brochure. There is no difficulty in answering the client's queries or paying attention to wishes for alterations (rather frequent) due to the close mutual contact and comprehensive service.

If one looks back over these past six years, one is inclined to say that Gundel was just darned lucky. The lack of skilled labour in 1970 coincided with the expansion of the enterprise which he joined. Today it would probably be much more difficult to repeat this career and get into such a situation. Yet, on closer inspection, one cannot get round the fact that it was due to his intensive occupation with photography and his well-above-average knowledge in this field that he managed to change professions so successfully. We are thinking here not so much of the technical know-how, being up-to-date as far as the latest cameras and stylistic trends are concerned or the urge to be creative. We believe, rather, that everything taken together, the whole attitude, kept the man fit, trained his intellect and prevented him from getting bogged down in the lethargy of everyday life.

*Colour page right:*

A very fine picture of spotted woodpecker. This bird you find all over Europe.

*Colour page 66:*

This little reed-warbler belongs to the family of the sparrows. You will find them in the vicinity of muddy meadows, water spots and along the small rivers. You specially find them in Middle-Europe, he is a bird of passage, which returns in May from the south and will fly back to the sunny part of Europe in September.

All photos Hans Gundel, Germany  
Linhof Kardan-Color 13 x 18 cm, Agfachrome 50 S

address on that day to the Académie Française the physicist Arago explained Daguerre's discovery, saying it was a gift of the French State to the whole of mankind. Indeed, Daguerre's invention was the first usable and reliable process. Yet, even at that time, about 40 inventors in Europe were experimenting with "photography". Since 1727 a number of scientists had known that Professor Johann Heinrich Schulze had discovered that it was possible to copy silhouettes with light-sensitive silver salt. So the problem was not the chemical recording of such images in the Camera Obscura. The obstacle at that time was to make such pictures permanent. The first person to find a solution to this problem was the retired French army officer, Nicéphore Niépce. He was one of those quiet, amateur scientists who carry out research work on their own and follow their goals with unbelievable tenacity. Niépce wanted to use his camera for the preparation of printing blocks, since Alois Senefelder had started to work with his lithographic press in Munich in 1797. To achieve the desired results, Niépce used paper, stone, glass and metal sheets as a base material and silver salt, asphalt and varnish as the light-sensitive coating. Around 1793 he already had the basic idea for his invention. In 1814 he began to work intensely on the project and when he died in 1833 he had, it is true, been successful in a number of ways, but he had lacked the luck which doubtlessly played into the hands of his partner Daguerre. The two inventors of photography proper, Fox Talbot and Daguerre, found out, in two completely different ways, that an enormous gain in light sensitivity could be achieved through development. Daguerre discovered that mercury worked as a developing substance for his silver iodide plates, whereas Fox Talbot employed gallic acid for his paper negatives. Niépce, on the other hand, had been obliged to keep testing patiently with exposure, times of up to eight hours. The first preserved photograph in the world was taken from his room in Gras near Chalon-sur-Saône and shows the court between the two side wings of the house, the sloping roof of the shed and the so-called bakehouse. On account of the extremely long exposure time, the sun is observed to have shone from both sides of the building. This "original" photograph was taken on a tin plate coated with asphalt and was a little over 6 x 8 inch in size. The portions of the asphalt (actually, white bitumen of Judea) which are most affected by the sunlight become hard. The soft parts of the image are then washed out with lavender oil, and the picture becomes visible. Niépce brought this photograph, as an example of his process, to his brother Claude in England and, after the death of Claude in 1828, it remained in the possession of a mutual friend in London, Francis Bauer. It was not until 1952 that the photo-historian Helmut Gernsheim, after years of detective work, at last traced the picture to Bauer's heirs. The valuable photograph is now part of the Gernsheim collection and is in the possession of the University of Texas. The date of this photograph can be set at the early summer of 1826, since the image is unreversed. It is known that only on the 8th November 1825 did Niépce obtain his prismatic lens from the Parisian optician Chevalier. Up until this time all photographs were reversed as if seen in a mirror. Since it is assumed that Niépce began his experiments when the winter had passed and the daylight was sufficiently intense, one can say, with some degree of certainty, that the world's first preserved photograph in existence dates back to the spring of 1826.

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## 150 years of photography

### *Birthday honours for the world's oldest photograph*

There must be very few inventions which were alleged to have been discovered by so many scientists at the same moment as was the case with photography. At least one was able to decide that the 19th August 1839 was the official birthday of the photographic process, since in a ceremonious











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## S u n s e t

### ... on the Chiemsee

Strictly speaking, this rather impressive photo can be shot by any photographer at any sunset. A picture series of over 400 sunsets in the mountains, at rivers, forest clearings, meadows, and prairies, has been submitted to the editorial staff. It has not been easy to decide in favour of the present sunset scene, especially as it follows the nostalgic line to a certain degree. It is a good example for a subject realized half-way in the range between the clear and very impartial objective photography and the subjective and quite often surrealistic picture composition on the other hand.

A well trained photographic eye, the right moment and the time of exposure exactly graded bring forth such results. This picture is meant to make the beholder concentrate his attention on the details imminent in Nature; for in the field of photography, too, the charm is inherent in the simple things, which we are so easily ready to overlook.

This kind of picture composition is of eternal value, especially when no technical or alar mode aspects have been implicated; for such quickly perishable things adulterate the picture by their perishable nature, unless the motif in question is of an explicitly classical kind.

Apart from the photographic material used for this exposure, it could as well have originated in the time of Daguerre or Niépce, and doubtlessly such photographs will still be made in the year 2.000.

The picture was taken in the south of the Federal Republic of Germany, in Bavaria, the country well known to tourists.

Photographer: Klaus Hackenberg









November  
November  
November

|                 |   |    |    |    |    |
|-----------------|---|----|----|----|----|
| Mo<br>Monday    | 7 | 14 | 21 | 28 |    |
| Di<br>Tuesday   | 1 | 8  | 15 | 22 | 29 |
| Mi<br>Wednesday | 2 | 9  | 16 | 23 | 30 |
| Do<br>Thursday  | 3 | 10 | 17 | 24 |    |
| Fr<br>Friday    | 4 | 11 | 18 | 25 |    |
| Sa<br>Saturday  | 5 | 12 | 19 | 26 |    |
| So<br>Sunday    | 6 | 13 | 20 | 27 |    |

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